THE COTTON GIN AND OIL MILL

PRESS

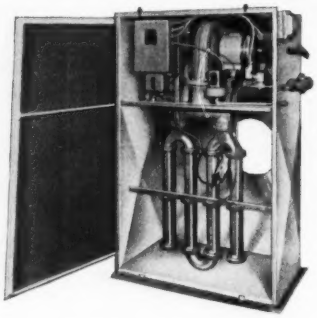
FORMERLY THE COTTON AND COTTON OIL PRESS

JULY 19, 1952

53rd YEAR

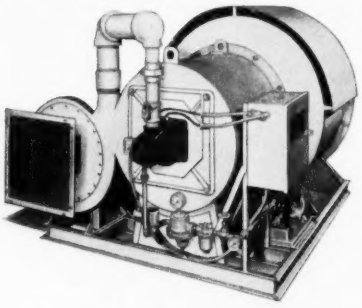
THE MAGAZINE OF THE COTTON GINNING AND OILSEED PROCESSING INDUSTRIES

NEW LUMMUS GAS and OIL HEATING UNITS



AUTOMATIC GAS BURNER

Lights automatically when dryer fans are started. Temperature holds at level set, remote controlled if desired. Mixture of gas and air automatically correct at every temperature. Made in 1 million and 2 million BTU capacities. Uses natural, or butane gas.



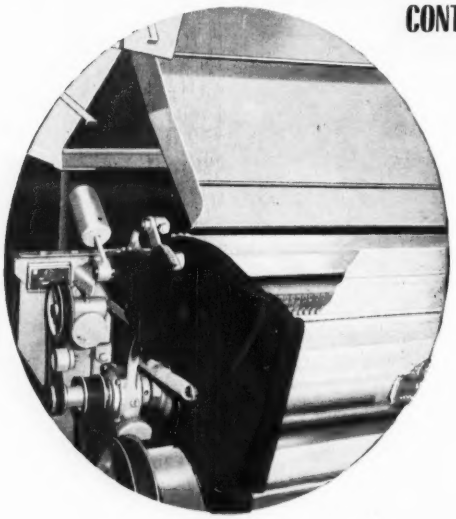
OIL FIRED FURNACE

Will burn practically all grades of free-flowing oil that do not require pre-heating. Automatic igniter. Automatic cut-off. Correct mixture at every range.

LUMMUS COTTON GIN CO.

Lummus is doing more to put gins on a better paying basis.

DALLAS, TEXAS **COLUMBUS, GA.** **MEMPHIS, TENN.**



CONTINENTAL'S IMPROVED ROLL DENSITY INDICATOR and AUTOMATIC CONTROL

- Tells at a glance the exact density within the roll.
- Automatically controls the feed of cotton into the gins.
- Automatically stops the flow of cotton through the Extractor-Feeder when gin breast is moved to the non-ginning position.
- Saves the ginner time and labor.
- Improves grade and increases output.

Write for Bulletin 179-A giving complete description.

CONTINENTAL GIN COMPANY

BIRMINGHAM, ALABAMA

Atlanta ● *Dallas* ● *Memphis*

Entered as second-class matter February 4, 1905, at the Post Office at Dallas, Texas, Under Act of Congress of March 3, 1897

Buy the SOLVENT EXTRACTION PLANT with a World-Wide Success Record!

FOR excellent extraction results, buy the solvent extraction plant with a world-wide record. Anderson's extensive network of successful solvent plants is your assurance that Anderson's famous outdoor unit *profitably* extracts vegetable oils.

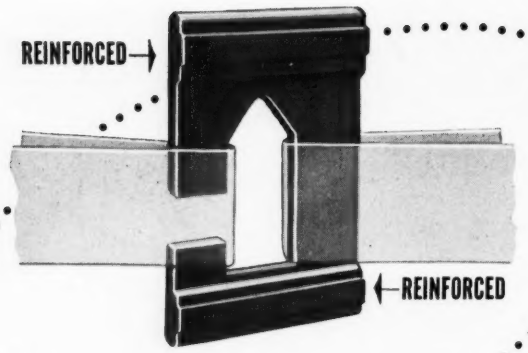
Anderson has more solvent plant installations because Anderson equipment and methods are consistently ahead of the field. Anderson engineers, with over 50 years experience in solving oil milling problems, are constantly improving the performance of Anderson equipment—with but one thought in mind—to make each installation as efficient as humanly possible. Learn what an Anderson plant can do for you. Get complete operating data today. Write briefly outlining your requirements.

THE V. D. ANDERSON COMPANY
1941 West 96th Street • Cleveland 2, Ohio

*Exclusive trade mark reg. in U. S. patent office and in foreign countries.

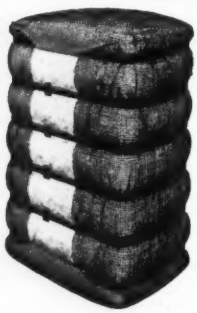
ANDERSON
- **EXPELLERS***
- **SOLVENT EXTRACTION**
- **EXSOLEX***

16 OIL MILLERS BOUGHT ANDERSON SOLVENT PLANTS IN 1951



Reinforced!

DIXISTEEL BUCKLES are now better than ever!



DIXISTEEL COTTON TIES

Standard bundles weigh approximately 45 pounds and contain 30 ties—each 15/16 inches by approximately 19½ gauge, 11½ feet long. Thirty buckles attached to each bundle. Sixty-pound ties also are made. Both weights available without buckles. Buckles shipped in kegs or carload bulk lots.

GINNERS who want a buckle that can stand up under the terrific pressure of modern presses—even when dry, spongy cotton is baled—will welcome the new, reinforced DIXISTEEL Buckle.

A heavier bead, top and bottom, prevents the buckle from snapping at the eye.

And these new DIXISTEEL Buckles seat firmly, are easy to thread, won't slide or cut the tie.

DIXISTEEL Cotton Ties are tough, too—made from our own special-analysis steel to assure uniform strength, quality, durability and finish. No dangerous, sharp edges, either!

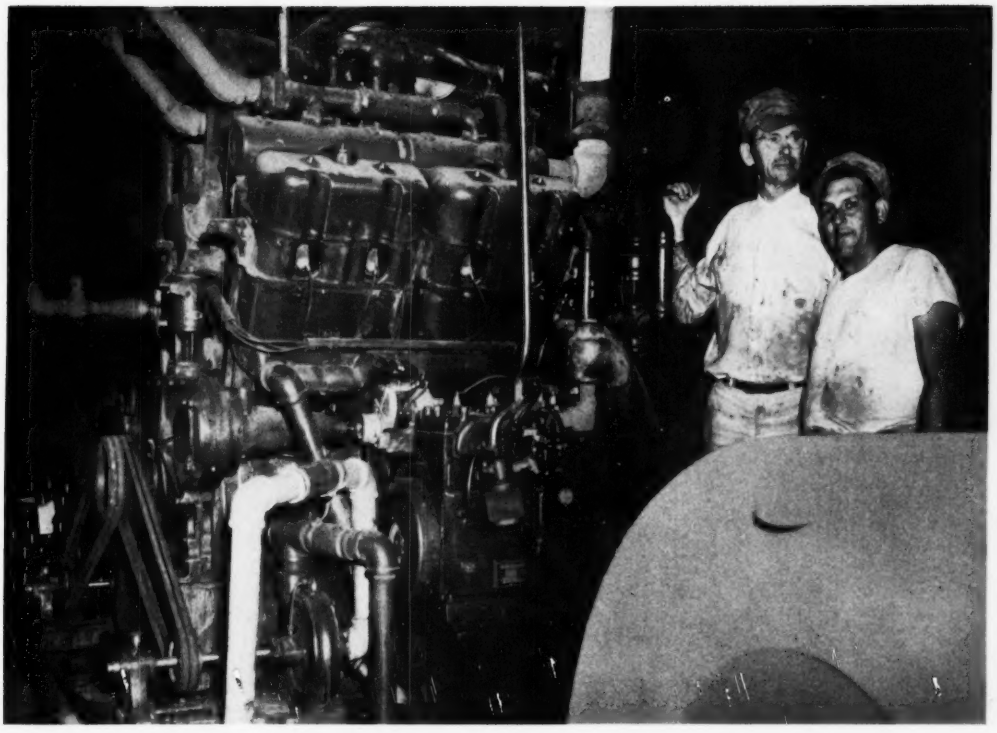
Order your supply of DIXISTEEL Cotton Ties and Buckles without delay.

made only by the

DIXISTEEL TRADE MARK COTTON TIES AND BUCKLES

Atlantic Steel Company

ATLANTA, GEORGIA



Nine seasons' service for this **Le Roi...** *plenty of operating life left!*

COTTON INDUSTRY POWER
LE ROI

PROMPT SERVICE • LOW FUEL COST • LESS DOWNTIME • AMPLE RESERVE POWER

Nine years of good service isn't a Le Roi record by any means — it's just typical of the long life you find in precision-built Le Roi engines.

The 233-hp V-8 Le Roi at Weslaco Gin Company, Weslaco, Texas already had about five years' service when the company bought it — hadn't needed a lick of work done to it in that time. It was overhauled then and put to work at Weslaco.

E. G. Wagner, manager, reports that in four seasons there, operating on natural gas, this Le Roi has had only one between-season top overhaul. At last inspection, the valves showed but little wear.

Guided valves — excellent valve cooling — big bearings — full-flow filtering system — these are just a few Le Roi design features that give you such long, dependable service.

If you are building a new gin or repowering an existing one, you owe it to yourself to get the complete Le Roi story of low power costs from your Le Roi distributor. Have him take you to see a Le Roi engine installation — soon. Sizes up to 450 hp continuous — all operate on low-cost natural gas or butane fuel.

F-49

Le Roi Cotton-Engine Distributors: Carson Machine & Supply Co., Oklahoma City, Okla. • General Machine & Supply Co., Odessa, Texas • Southern Engine & Pump Company, Houston, San Antonio, Kilgore, Dallas, Edinburg, Corpus Christi, Texas, and Lafayette, Houma, La. • Ingersoll Corporation, Shreveport, La., Jackson, Miss. • Tri-State Equipment Co., Little Rock, Ark., Memphis, Tenn. • Nortex Engine & Equipment Co., Wichita Falls, Texas • Farmers Supply, Lubbock, Texas.

LE ROI COMPANY • *Plants:* Milwaukee-Cleveland-Greenwich, Ohio • *Cotton-Industry Headquarters:* Tulsa, Okla.

From the Farms of America...

WHEN HOMEMAKERS TRY different brands of margarine they sooner or later hit on Allsweet. Then their search for flavor suddenly ends. For there is no artificial flavoring in Allsweet. Its flavor is delicate, *natural.*

And no wonder. A true farm product, Allsweet is made from clear rich food oils blended—by an exclusive process—with cultured pasteurized skim milk.

So always ask for Allsweet —the margarine with the delicate ***natural*** flavor.

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SWIFT & COMPANY

THE COTTON GIN AND OIL MILL PRESS

52nd YEAR

THE MAGAZINE OF THE COTTON GINNING AND OILSEED PROCESSING INDUSTRIES

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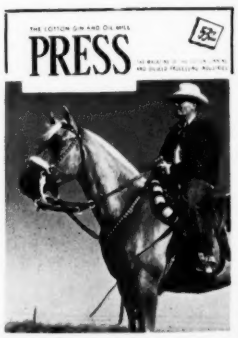
The Cover

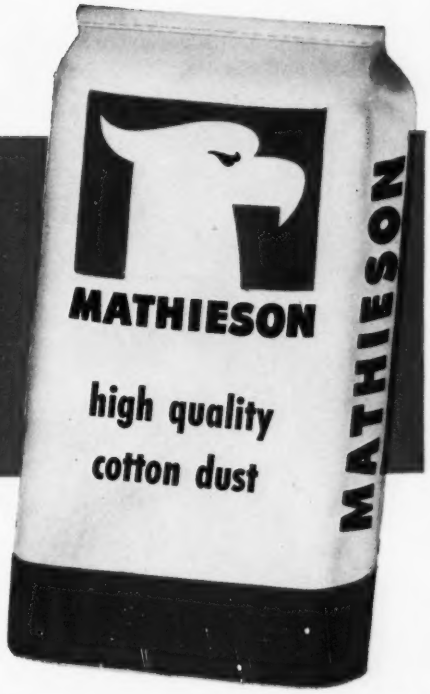
LOVERS of fine horses will approve of the fine specimen shown on the cover of this issue. We were unable to obtain technical data with the picture, but this beautiful animal looks like a Palomino to us. Incidentally, the noble horse is making a fast, and to many a regrettable, exit from the American scene. In 1900, for example, the country had 35 million horses of all breeds, used mostly on American farms. But now, it is estimated, there are only 7 million left.

Photograph by Bob Taylor



RESPONSIBLE PUBLICATION
READ BY COTTON GINNERS, COTTONSEED CRUSHERS AND OTHER OILSEED PROCESSORS FROM CALIFORNIA TO THE CAROLINAS

A Good Rule to Follow



for Mid Season and Late Season
COTTON INSECT CONTROL

3-0-0 **2-10-40**

3-5-40

3-5-0 **3-10-40**

TOXAPHENE FORMULATIONS

20% • **20%-40%** • **10%-40%**

AGRICULTURAL DUSTING SULPHUR

For best results with Mathieson Cotton Dusts, follow a consistent schedule as recommended by your state authorities. Prompt delivery can be made from Houston, Texarkana and Little Rock. See your Mathieson dealer today.

Mathieson Chemical Corporation, Agricultural Chemicals Department, Baltimore 3, Maryland.

Sales Offices:
Houston, Texas; Little Rock, Arkansas; St. Louis, Missouri
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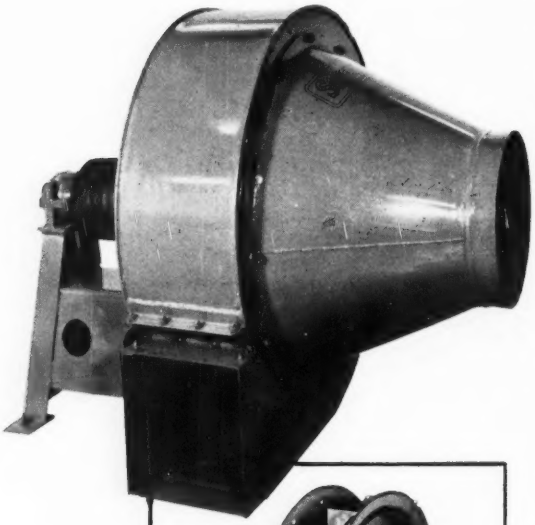
SERVING INDUSTRY, AGRICULTURE AND PUBLIC HEALTH

MATHIESON

9021-A

We Speed Up Unloading with a BOARDMAN SUPERBLAST FAN!



We're always in a rush to get cotton unloaded and into the gin . . . and believe me, our BOARDMAN Superblast Unloading Fan does the job in record time.

Notice the perforated, cone-shaped screen that revolves with the blast wheel. It catches the cotton as it comes in, and lets the air go through.

There are two main purposes for the perforated cone. First, it increases the free opening area, so more air gets through quicker.

Second, it gives a sloping surface so the cotton can slide over quick and easy.

The cotton is thrown off the screen and picked up again by the air blast at the outlet.

The blades never strike the cotton. That eliminates roping of the cotton, cracking of seed and fire hazards, and speeds up the whole unloading job.

Take it from me — the BOARDMAN Superblast Unloading Fan will do a fast, economical job for YOU. See it today!

SUPERBLAST CONVEYING FANS
STEEL CONVEYOR BOXES & COVERS
PORTA-LOADERS
PNEUMATIC SEED CLEANERS

THE BOARDMAN CO.
OKLAHOMA CITY, OKLAHOMA
1403 S. W. 11TH ST. PH. MElrose 8-5435

Men who depend on power...know they can depend on CUMMINS®

Every CUMMINS DIESEL is built not once but twice

Textile men have learned to count on Cummins Diesels for dependable power day in, day out.

What's behind this consistent reliability? One good reason is the fact that every Cummins Diesel is actually built *twice*. After initial assembly, and run-in testing, every engine is disassembled, inspected; then reassembled and tested again.

This extra care—together with Cummins' economy-proved fuel system and efficient parts and service organization—makes lightweight, high-speed (50-500 h.p.) Cummins Diesels a wise first choice *for men who depend on power*. Whatever your power needs, your Cummins dealer is the man to see.

X-91-R1)

CUMMINS ENGINE COMPANY, INC., Columbus, Indiana
Export: Cummins Diesel Export Corporation, Columbus, Indiana, U.S.A. • Cable: CUMDIEX

TRADEMARK REG. U. S. PAT. OFF.

***Leaders* in lightweight, high-speed diesel power!**

(1-1-52)

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Higher Grade... Higher Price

when you defoliate with

AERO® Cyanamid, SPECIAL GRADE

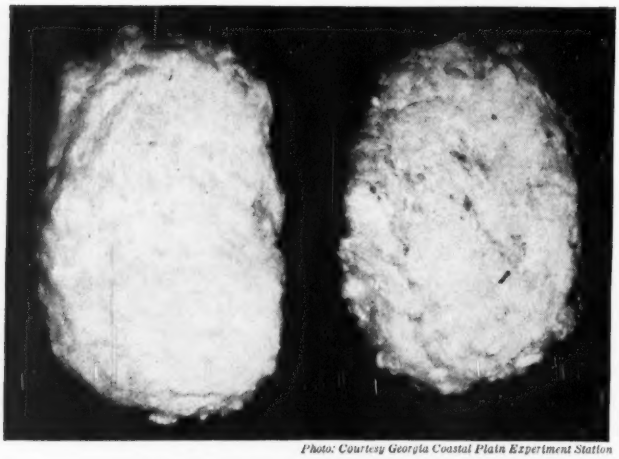

Photo: Courtesy Georgia Coastal Plain Experiment Station

Defoliated cotton (left) produced middling, and undefoliated cotton (right) low middling. The better price for the cleaner cotton was far above defoliation costs.

Higher price is only *one* reason for defoliating cotton. Here are some others:

- **Faster, easier, less costly picking—by hand or machine.**
- **Trash and leaf stain reduced to a minimum.**
- **More complete harvest at one picking.**
- **More air and sunshine reach early bolls, help prevent boll rot.**
- **Leaf fall starves late boll weevil broods...hastens maturity of a late crop.**
- **Leaves fall off without damage to the plant.**

To be sure of all these advantages, defoliate with Aero Cyanamid, Special Grade—the original and today the most widely used and most widely recommended of cotton defoliants. *Cyanamid offers you a wide margin of safety in dosage* . . . can be applied by airplane or ground dusting equipment.

For cotton defoliation under special conditions:

*Aero*Sodium Cyanamid, Dust (X-10)*—hygroscopic dust defoliant developed especially for use in the absence of dews in semi-arid areas.

*Aero*Sodium Cyanamid, Soluble (X-5)*—highly effective spray defoliant for semi-arid areas, where conditions favor a liquid over a dust application.

**Trade-mark*

See your supplier, write for literature.

AMERICAN Cyanamid COMPANY

AGRICULTURAL CHEMICALS DIVISION, 30 ROCKEFELLER PLAZA, NEW YORK 20, N.Y.

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Laugh IT OFF

A couple wanted to get married in a hurry. The man, a soldier on a 48-hour pass, took his blushing bride to the nearest minister. "Impossible," said the latter. "In this state even a special license would take too long."

The would-be-bride and bride-groom exchanged a look of misery, then a smile spread across the soldier's face. "Well," he suggested brightly, "couldn't you say a few words to tide us over the weekend?"

• • •

Don: "Doing anything yet?"

Fred: "Yes, I'm selling a wonderful invention. It's a mattress made of cellophane, so that old maids don't have to get out of bed to see who's underneath."

• • •

Johnny and Tommy were discussing Johnny's new little brother.

"Say," Tommy said, "I don't know much about these things, but hasn't your father been over in Germany for over two years?"

"Yes, he has, but he writes Mother every week."

Tommy weakly commented, "Golly, what a pencil."

• • •

The club members were bidding farewell to one who was leaving for India. In the conversation a friend said, "It gets pretty hot in India at times. Aren't you afraid the climate might disagree with your wife?"

The man looked at him reproachfully. "It wouldn't dare."

• • •

Said Tomcat to his missus,
My darling little spouse,
About your secret love life,
Methinks I smell a mouse!
You're black and I am yellow,
So won't you tell me, dear,
Why seven bluish kittens
Have started boarding here?

• • •

"Doctor, I'm worried. Last night I dreamed I was alone with a thousand beautiful blondes, and a thousand beautiful red-heads. It was horrible, Doc."

"What's so horrible about it?"

"I dreamed I was a girl too!"

• • •

Old Maid: "I can't decide between the divan and the arm chair."

Clerk: "Lady, you can't make a mistake on a nice comfortable chair like this."

Old Maid: "O. K. I'll take the divan."

• • •

Concerned wife: "My husband runs around at night. Can you suggest a way to keep him at home?"

Psychiatrist: "Well, some women use window weights, while others use hammers. Personally I would suggest a pink negligee."

• • •

Freshman: "What is the difference between a sewing machine and a girl running for a trolley?"

Senior: "A sewing machine has only one bobbin."

• • •

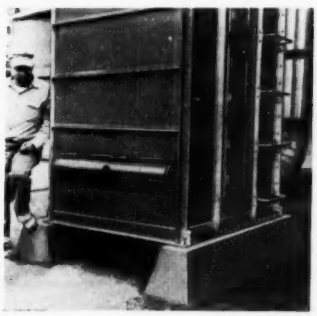
Liquor kills a lot of people—staying out late kills a lot of people—smoking kills a lot of people—but what kills people who live right?

MORE PROFITABLE GINNING WITH ERIEZ PERMANENT MAGNETS

Actual Use In Field By Progressive Ginners Prove Magnets Worth!

Fires Reduced By 80% To 90%
Maintenance Reduced As Much As 30%
Production Increased By 10% And More

Two years of extensive field testing show that specially developed ginning magnets produced by Eriez, the pioneers of permanent magnetic separators, lead to more profitable operations . . . and here's why! Fire, the ginner's major enemy, is caused by foreign metal (tramp iron) . . . This foreign metal can be effectively controlled by installing high strength Eriez Permanent Magnets. No chance of fast flying metal to strike a spark . . . tramp iron can't reach expensive cleaning equipment . . . machinery keeps operating . . . repair bills go down and production up. An official of the Stoneville Pedigreed Seed Co., Stoneville Mississippi, stated that he believed the all-around savings gained by Eriez Permanent Magnetic protection will easily pay for the magnetic unit in one season. As the harvesting and ginning period becomes shorter and more critical due to mechanical harvesting, the value of Eriez magnets increase with each succeeding season. Here's equipment every progressive ginner will want to investigate. Here's equipment that will lead the way to more profitable ginning seasons. Shown below is one of many field-tested and recommended installations . . . a Tower Drier installation at the Stoneville Pedigreed Seed Company. A similar installation can mean bigger profits for you.



This is a simple installation on new Driers or on existing equipment. It becomes a part of the side of the Drier. Hinges permit the unit to swing down for easy tramp iron removal. To make installation even more simple, the magnet may be installed in the transition piece following the Drier. These installation points provide greatest protection from fires, and also protect cleaning equipment from damage.

INSURANCE ASSN. TELLS USERS TO INVESTIGATE VALUE OF ERIEZ PERMANENT MAGNETS

The use of magnetic separators in industry is well-known to many manufacturers. Those unfamiliar with this device might well investigate its advantages for the removal of ferrous foreign material from their stock in process.

By use of a magnetic separator ahead of processing equipment, in which tramp iron or other ferrous materials might strike sparks in the presence of combustible fibres, the probability of fire or explosion from such a cause is reduced to a minimum. In addition, mechanical damage to equipment is minimized, maintenance problems reduced and a greater degree of safety attained. Obviously, production itself is safeguarded by the installation of magnetic separators.

CONVINCE YOURSELF TAKE ADVANTAGE OF 30 DAY FREE TRIAL

Eriez offers many advantages . . . the magnets are simple, powerful, permanently magnetized . . . no wiring for electric current is needed . . . each unit carries a 10 year guarantee! Prove to yourself the value of this equipment . . . buy on 30 DAY FREE TRIAL! If installation is made previous to beginning of the ginning season, trial period will commence on the first day of operation and end 30 days from that date. Trial offer does not apply to green boll trap. Trial period will be mutually established between the ginner and the manufacturer. All shipments, F.O.B., Erie, Pennsylvania.

MOST COTTON OPENER ROOM FIRES CAUSED BY FOREIGN METAL

In cotton mills, Factory Mutual Insurance engineers estimate that some 79% of the reported opener and picker room fires are the result of tramp iron in cotton.

Shown above is a typical collection of tramp metal removed from one of Eriez experimental gin installations following a short period of operation. By use of Eriez magnetic equipment this foreign metal, which might strike sparks in the presence of combustible fibres causing fires and explosions, is eliminated. In addition, mechanical damage to equipment is minimized, maintenance problems reduced and greater safety attained.

Ask For Free Gin Magnet Bulletin

Clip and mail the handy printed inquiry coupon below for a brand new four-page Bulletin B-565 completely describing new Non-Electric Permanent Magnets designed especially for you.

(3)

CLIP AND MAIL TODAY

ERIEZ

ERIEZ MANUFACTURING CO.
MAGNET DRIVE, ERIE, PA.

Name .....

Street .....

City ..... State .....

Company Name .....

Sales Offices throughout the Cotton Belt.

R. W. Bartley .....Tucson, Arizona
Brown-Steele Co. .....Dallas, Texas
Capstick & Co. .....St. Louis, Mo.
C. W. Dean .....Memphis, Tenn.
H. H. Hersey Co. .....Greenville, S. C.
B. A. Pietri .....Richmond, Va.
Power-Mac, Inc. ...San Francisco, Calif.
C. D. Sutton .....Los Angeles, Calif.
R. J. Tricon Co. .....New Orleans, La.
L. P. Zumstein .....Port Orange, Fla.

What are the Advantages of Buying Phillips 66 Hexane?

● SOUND INVESTMENT

No light ends to lose—no heavy residue. You buy only active solvent with a typical boiling range spread of 5° F.

● TOP QUALITY

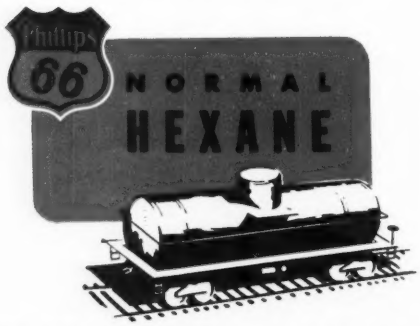
Rigid solvent specifications prevent contamination—add no foreign tastes or odors to your oil or meal. It's pure, clean, water-white!

● IMPROVED CONTROL

Phillips *66* Hexane has controlled uniformity to minimize your overall operating problems and reduce processing costs.

● ASSURED SUPPLY

Phillips, world's largest hexane producer, maintains a large fleet of solvent tank cars for prompt shipment of your orders.



Write now for complete information on Phillips *66* Solvents for soybean, cottonseed, flaxseed, tung nut, rice bran, corn germ, castor bean, alfalfa, animal fat and other oil extraction industries.

PHILLIPS PETROLEUM COMPANY

SPECIAL PRODUCTS DIVISION • BARTLESVILLE, OKLAHOMA

A Review of the Commercial and Experimental Processing of Oil-Bearing Materials

By F. A. DECKBAR Jr., R. M. PERSELL, E. F. POLLARD, and E. A. GASTROCK

Southern Regional Research Laboratory [1]
New Orleans, Louisiana

SEVERAL RECENT REVIEWS of oil-bearing materials (29, 36, 43, 67) discuss such practical factors as areas where available, quantities available, characteristics, agricultural developments, and uses of oil and meal produced. None of these reviews reports extensively on the processing of the materials. This survey of the literature is intended to supplement these previous reviews by presenting information on the commercial and experimental processing of oil-bearing materials, including any facts available related to aspects of processing. Such a comprehensive review should prove a useful general reference to anyone interested in oilseed processing, as well as of specific value to operators who are contemplating the processing of one or more additional materials to extend seasonal operation as a means of improving the financial position of their mills (8, 11). A table which presents data on crop production, oil content, and uses of the products is included since such information would be required by most of those interested in using the survey as a reference.

The oil-bearing materials which are reported on are as follows, and fall into the following categories:

Domestically available and commercially processed: Apricot pit, Citrus seed, Corn germ, Cottonseed, Cranberry seed, Flaxseed, Grain screenings seed, Grape seed, Olive, Peanut, Pecan, Rice bran, Soybeans, Tung nut, Walnut, Wheat germ.

Important in world trade and imported only: Babassu kernel, Coconut (copra), Palm kernel.

Processed abroad, available domestically, but processed either not at all or little: Almond, Avocado, Mustard seed, Peach pit, Plum pit, Tomato seed.

Under domestic agricultural development, processed mainly in the pilot plant (some on a limited commercial scale): Castor bean, Okra seed, Rape seed, Safflower seed, Sesame seed, Stillingia seed, Sunflower seed.

For cottonseed and soybeans, only a few general references are given since all aspects of the processing of these oilseeds are generally well known to oil mill operators.

[1] One of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture.

The processing information is given below under an alphabetical arrangement of the materials.

ACORN

Acorns have been experimentally crushed by a commercial oil mill (34).

Hutchins (32) examined the oil expressed by the Farmers Oil Mill, Newberry, S. C.

McCormack (45) reported on the processing of 847 pounds of acorns with pilot-plant screw-press and solvent extraction facilities. Most of the acorns were prepared by removing the shells in a winnower and fanner ordinarily used to remove shells from cocoa beans. This operation simultaneously accomplished cracking and crushing of the acorns, and separation of the lighter hull fragments by an air stream. In using a screw-press, the cake obtained was crumbly and not firm. A firm, hard cake was produced by adding water to the meats being fed to the press. The solvent extraction experimentation was performed on both acorn meats and press-cake, using two pilot-plant extractors.

On the basis of personal observations and attempts to get the acorns, McCormack and co-workers formed the opinion that they are seldom as abundant as is popularly supported. Potential suppliers expressed a willingness to collect acorns for 3 cents a pound (in 1947). Harvesting for commercial utilization, however, might be difficult, and the prospective harvesters would have to be educated as to the type of material suitable for the recovery of oil.

ALMOND

Kester (36) has reported that one company in the Los Angeles, Calif., area presses small amounts of almond oil. When the shelled nuts are dried, coarsely ground, and cold pressed at 450 pounds pressure, about 75 percent of the oil is recovered. No statement was found in the literature as to the applicability of solvent-extraction methods to the recovery of oil from almonds.

The raw material for oil recovery is usually inedible fragments or unsalable meats obtained from shelling plants (34). The bulk of the oil of commerce is obtained by the pressing of bitter almonds (21, 34, 37), the press-cake being used for the extraction of essential oil of almonds (21, 37). In the United States the oil is marketed as "sweet almond oil" to distinguish it from the essential or volatile oil (34).

APRICOT PIT

Apricot pits are processed for the recovery of the kernels, for which there is a large domestic market. The pits are cracked between rollers, and the mixture of cracked shells and kernels is introduced into a tank containing a brine solution of such density that the shells sink and the kernels float. The kernels are skimmed off, washed with water to remove any brine solution, dried, and sorted (36). Considerable amounts of broken kernels result from cracking the pits, and these are separated on sorting and used for oil recovery (34, 36). The kernels are coarsely ground and tempered in a steam-jacket conveyor prior to extraction of the oil by pressure (65). The press-cake may be used for recovery of the essential or volatile oil by hydrolysis and distillation, or for stockfeed or fertilizer (34, 63, 64, 65).

Solvent-extraction methods may also be employed (36).

AVOCADO

The oil is obtained from the fleshy portion, or pulp, of the fruit (21, 34, 36). After removing the large seed, which contains only from 1 to 2.5 percent oil, the pulp is broken into a number of pieces and dehydrated in an oven under an atmosphere of nitrogen. The oil is extracted by pressure (21, 34).

Another method, developed for use with olives, has been successfully applied to avocados (36). The fruit is seeded and macerated with water in a ball mill; the resulting slurry is then screened and centrifuged to recover the oil.

BABASSU KERNEL

The tree from which the nut is obtained grows widely in Brazil, Mexico, and British Honduras (21, 78). The raw

(Text Continued on Page 17)

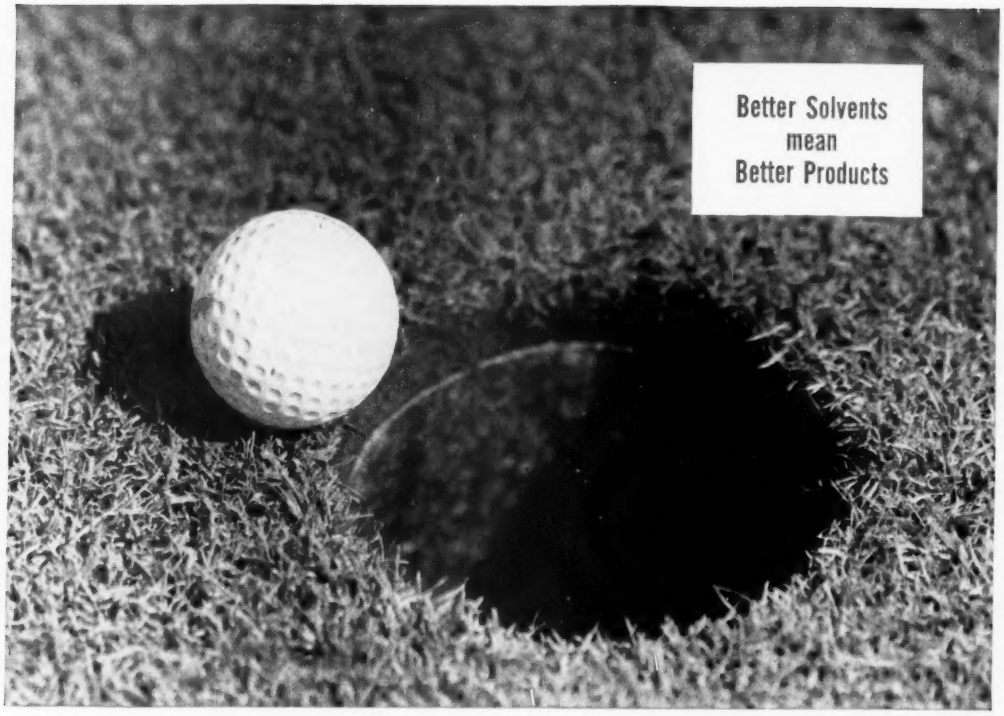
NOTE: The table referred to in the first paragraph of this article will be found on the following two pages.—ED.

Material	Production* Crop Year	Domestic 1000 tons	Imports tons	Exports tons	Oil Content Seeds, Pits, or Nuts %	Meats or Kernels %	Processing Methods	Main Uses of Products Oil	Meal
Acorn	1949-50 1950-51	— —	41 37	— —	2.5-16		Pressing [2]; solvent extration [2]	(non-drying) edible.	
Almond [3]	1940-49 avg. 1949-50 1950-51	26 [4] 43 [4] 38 [4]	11,369 1,886 15,690	— 210 109		40-61	Pressing [1]	(non-drying) pharmaceuticals; cosmetics.	Recovery of essential oil; cosmetics; baking industry.
Apricot pit	1949-50 [5] 1950-51 [5]	12 —	516 85	39 —	8-11	40-45	Pressing [1]; solvent extraction [1]	(semi drying) edible; cosmetics; substitute and adulterant of Almond Oil; pharmaceuticals; sardine oil.	Recovery of essential oil; stockfeed; fertilizer; cosmetics; baking industry.
Avocado (pulp)	1940-49 avg. 1949-50 1950-51	— 19 [6] 25 [6]	2,764 3,206 3,944	— — —		8-30	Pressing [1]	(non-drying) cosmetics; edible.	Stockfeed; fertilizer.
Babassu nut	1940-49 avg. 1949-50 1950-51	— — —	24,374 [7] 24,738 [7] 10,611 [7]	— — —		63-70	Pressing [1]; solvent extraction [1]	(non-drying) edible; soap; substitute for Coconut Oil and Palm Oil.	Stockfeed.
Castor bean	1940-49 avg. 1949-50 1950-51	— — —	148,170 143,639 114,206	— — —	35-55	45-70	Pressing [1]; solvent extraction [1]	(non-drying; drying — by dehydration) paint; varnish; lacquers; plastics; rayon; nylon; textiles; cosmetics; medicinals; rubber and rubber products; floor coverings; inks; fungicides; electrical insulation; soaps; artificial leather; aircraft lubricants; hydraulic fluids; plasticizer in manufacture of military fabrics and explosives.	Fertilizer.
Cherry pit		—	—	—	7-9	30-40	Pressing [1]	(semi-drying) edible; soap; cosmetics.	Stockfeed; fertilizer.
Citrus seed g-Grapefruit o-Orange l-Lemon	1949-50	1.3 [8]	—	—	g 28-35 o 34-45 l 30-35		Pressing [1]; solvent extraction [1]	(semi-drying) edible; soap; cosmetics.	Stockfeed; fertilizer.
Coconut (copra)	1940-49 avg. 1949-50 1950-51	— — —	296,089 450,592 513,244	— — —	30-40	60-70	Pressing [1]	(non-drying) edible; soap; cosmetics.	Stockfeed.
Corn germ [9]	1940-49 avg. 1949-50	117,572 [10] 127,668 [10]	— —	— —	3-6	30-50	Pressing [1]; solvent extraction [1]	(semi drying) edible; soap; linoleum; oilcloth; paint.	Stockfeed.
Cottonseed	1940-49 avg. 1949-50 1950-51	4,900 6,559 4,005	— — 692	— 11,237 —	14-28	28-40	Pressing [1]; solvent extraction [1]	(semi-drying) edible; soap.	Stockfeed; fertilizer.
Cranberry seed		—	—	—	20-21		Solvent extraction [1 2]	(drying).	
Cucurbit (wild gourd) seed		—	—	—	28-33	48	Solvent extraction [2]	(semi-drying) edible; soap.	Stockfeed.
Fanweed (Pennycress) seed		—	—	—	31-35			(semi-drying) substitute for Rapeseed oil in lubricants and rubber substitutes; edible; paint; varnish.	Stockfeed.
Filbert (hazel nut)	1940-49 avg. 1949-50 1950-51	7 [3 11] 11 [3 11] 7 [3 11]	5,497 3,929 5,254	— 235 339	20 25	50-60	Pressing [2]	(non-drying) edible; soap; medicinals; perfumes; cosmetics; lubricants.	
Flaxseed (linseed)	1940-49 avg. 1949-50 1950-51	1,041 1,230 1,099	192,477 48 [12]	115,247 55,628 80,463	32-43		Pressing [1]; solvent extraction [1]	(drying) paint; varnish; printing ink; linoleum; oil-cloth; soft-soap; waterproofing.	Stockfeed.
Grain screenings (weed) seed		—	—	—	14-22		Pressing [1]; solvent extraction [1]	(drying; semi-drying) generally same uses as the oil of the seed from which the weed seed are screened.	Stockfeed.
Grape (raisin) seed		—	—	—	6-22		Pressing [1]; solvent extraction [1]	(drying) edible; coating raisins; soap; cosmetics; lubricants; paints.	Stockfeed.
Jojoba seed		—	—	—	48-51		Pressing [2]; solvent extraction [2]	(non-drying—actually a liquid wax) lubricants; linoleum; polishes.	Stockfeed.
Milkweed seed		—	—	—	21		Pressing [2]; solvent extraction [2]	(drying) preparation of alkyd resins; textile soap; edible.	Plastics.
Mustard seed	1940-49 avg. 1949-50	— 5,650	6,701 7,479	— —	24-39		Pressing [1]	(semi-drying) soap; substitute for rapeseed oil in lubricants.	Condiment preparation.
Okraseed		—	—	—	13-22		Pressing [2]; solvent extraction [2]	(non-drying) edible; soap.	Stockfeed.

Material	Production* Crop Year	Domestic 1000 tons	Imports tons	Exports tons	Oil Content: Seeds, Pits, or Nuts %	Oil Content: Meats or Kernels %	Processing Methods	Main Uses of Products: Oil	Main Uses of Products: Meal
Olive	1940-49 avg.	49 [4]	22,875	—	25-60		Pressing [1]; solvent extraction [1]	(non-drying) edible; soap; cosmetics; medicinals; lubricants.	(pressed) stockfeed; (solvent extracted) humus.
	1949-50	35 [4]	10,750	1,435					
	1950-51	43 [4]	13,096	1,173					
Olive kernel		—	—	—		25-28	Pressing [1]; solvent extraction [1]	(non-drying) same as Olive Oil.	Stockfeed.
Palm		—	—	—		64-88	Steam digestion and centrifugation [1]; Pressing [1]; solvent extraction [1]	(non-drying) edible; soap; tin-plating; candles.	Fuel.
Palm kernel	1940-49 avg.	—	39	—		40-53	Pressing [1]; solvent extraction [1]	(non-drying) edible; soap; candles; substitute for Coconut Oil.	Stockfeed.
	1949-50	—	21	—					
Peach pit	1949-50	11	—	—		32-46	Pressing [1]	(semi-drying) substitute and adulterant of Apricot kernel oil or Almond oil; edible; pharmaceuticals; cosmetics; sardine-oil.	Recovery of essential oil; stockfeed; fertilizer.
Peanut	1940-49 avg. [2]	1,008	5,419	93,894		40-50	Pressing [1]; solvent extraction [1]	(non-drying) edible; soap; sardine oil; lubricants.	Stockfeed.
	1949-50 [3]	938	5,500	121,440					
	1950-51 [3]	1,010	6,500	33,721					
Pecan	1940-49 avg.	62	—	—		60-75	Pressing [1]	(non-drying) edible; drug and essential oil industry.	Recovery of tannin; stockfeed; conversion to charcoal.
	1949-50	64 [3]	440	1,207 [3]					
	1950-51	63 [3]	805	809					
Plum (prune) pit		—	—	—		30-42	Pressing [1]	(semi-drying) same as Peach kernel oil and Apricot kernel oil.	Same as meal of Peach pit and Apricot pit.
Rape seed	1940-49 avg.	3 [13]	741	—	30-45		Pressing [1]; solvent extraction [1]	(semi-drying) edible; lubricant; wool-oil; soft-soap; quenching and tempering steel plates.	Stockfeed; fertilizer.
	1949-50	—	1,196	—					
	1950-51	—	2,370	—					
Rice bran		—	—	—		8-20	Pressing [1]; solvent extraction [1]	(semi-drying) edible; soap.	Stockfeed.
Safflower seed	1949-50	4 [14 15]	—	—	24-36	58-65	Pressing [1]; solvent extraction [1]	(drying) paint; varnish; linoleum; edible.	Stockfeed.
Sesame seed	1940-49 avg.	—	4,459	—	50-57		Pressing [2]; solvent extraction [2]	(semi-drying) edible; soap; perfumes; paints; insecticides; substitute for Olive oil in medicinals and cooking.	(pressed) stockfeed; (solven extracted) fertilizer.
	1949-50	—	5,671	—					
	1950-51	—	11,777	—					
Soybean	1940-49 avg.	5,357	52	150,171	11-25		Pressing [1]; solvent extraction [1]	(semi-drying) edible; soap; paint; varnish; linoleum; oil-cloth; printing ink.	Stockfeed; flour; adhesives plastics; sizing for paper.
	1949-50	6,927	110	434,978					
	1950-51	8,610	47	817,632					
Stillingia (Chinese tallow tree) seed		—	—	—	50		Pressing [1]; solvent extraction [1]	(drying) paint; varnish.	Stockfeed.
Sunflower seed	1944-48 avg.	4 [15]			24-31	46-54	Pressing [1]; solvent extraction [1]	(semi-drying; drying) edible; paint; varnish; soap; medicinals; lubricants; wool-treating.	Stockfeed.
Tobacco seed		—	—	—	30-46			(drying) edible; soap.	
Tomato seed		—	—	—	18-23		Pressing [1]; solvent extraction [1]	(semi-drying) edible; soap; paint; varnish.	Stockfeed; fertilizer.
Tung nut	1940-49 avg.	36	—	—		40-63	Pressing [1]; solvent extraction [2]	(drying) paint; varnish; enamel; lacquers; linoleum; printing ink; leather dressing.	Fertilizer.
	1949-50	88	—	—					
	1950-51	39	138	—					
Typha (cattail) seed		—		—	18			(drying).	Stockfeed.
Walnut	1940-49 avg.	68 [14 16]	2,168	—		60-70	Pressing [1]	(drying) edible; soap; paint; printing ink; artists' oil paints.	Stockfeed; fertilizer.
	1949-50	88 [14 16]	7,514	2,060					
	1950-51	64 [14 16]	7,725	1,832					
Wheat germ		—	—	—		8-12	Pressing [1]; solvent extraction [1]	(semi-drying) pharmaceuticals.	

*Sources: Agricultural Statistics, 1950, U. S. Dept. of Agric.
Crop Production, Bur. of Agric. Econ., U. S. Dept. of Agric.
Crops and Markets, Bur. of Agric. Econ., U. S. Dept. of Agric.
U. S. Imports of Merchandise for Consumption, Bur. of the Census, U. S. Dept. of Com.

[1] Commercial
[2] Experimental
[3] In-shell
[4] California production
[5] Apricot and peach kernels
[6] California and Florida production
[7] Kernels
[8] Estimated potential is 16.7 thousand pounds
[9] Wet-process grindings
[10] 1000 bushels
[11] Oregon and Washington production
[12] Less than 500 pounds
[13] 1942-49 avg. Idaho production
[14] California and Oregon production
[15] See reference 67
[16] English (Persian) walnuts



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Processing of Oil-Bearing Materials

(Continued from Page 13)

material for oil recovery is mainly in the form of kernels imported from Brazil, although comparatively small amounts of nuts are also imported. Machines have been developed for removing the husks and cracking the thick, hard shells, but in the producing areas, most of this is still done by hand (34, 37, 78). The oil may be obtained by either pressure or solvent-extraction methods (34).

CASTOR BEAN

The oil is recovered by pressing and also by solvent-extraction (21, 34, 37). The beans are first freed of foreign matter and decorticated in special hullers (78). "No. 1," or medicinal, oil is obtained by cold or warm pressings where the temperature is maintained below 90° to 100° F.; "No. 3," or technical, oil is obtained by grinding the cake from the cold pressing and applying higher pressures (21, 37, 78). The cake from the hot pressing, usually containing approximately 10 percent oil, is often solvent-extracted for more complete oil recovery, as the meal can be used only for fertilizer (34, 37, 78).

CHERRY PIT

Cherry pits are processed for their oil in the same manner as apricot pits. The pits are cracked, kernels are separated by brine flotation, and the oil is obtained by pressure or by solvent extraction (34, 36, 63, 64).

Cherry pits have been processed for oil by one company in Sturgeon Bay, Wisconsin (34, 36).

CITRUS SEED

Citrus seed, which include the seeds of the orange, lemon, and grapefruit, are constituents of the waste from citrus canneries, and according to Hutchman (33), can be removed cheaply without disturbing handling procedure and disposal of residual peel and rag. Hutchman reported that state control tests have shown that citrus pulp feed, made from cannery waste from which seed has been removed, is improved in two ways. First, it is made more uniform in composition throughout the season and, secondly, undesirable fiber content is greatly reduced.

Wright (80) reports that citrus seed are usually not processed for oil at the citrus processing plants as the volume of seed from a season would not justify erection of the necessary equipment. Plants usually ship seed to oil mills for processing (some ship to peanut oil mills, some to tung oil mills). All the seed is not removed from the waste since the pulp and rag are sold to feed buyers who demand some seed for protein content.

Nolte (52) reported that the seed are separated and collected at the canneries and transported by truck to the oil mill where they were allowed to undergo fermentation for a period of 24 to 48 hours to loosen the slimy coating and adhering pulp. The seeds, containing about 40 to 45 percent moisture, were then drained, steamed (an operation which cracked the hulls), and dried in a rotary drier to 2.5 to 3 percent moisture. Van Atta (71), in reporting on experimental crushings of Valencia orange seed, stated that meal, composed of about 85 percent kernels and 15 percent shredded hulls, was preheated and tempered prior to extraction of the oil by pressure.

Van Loesecke (72), however, states that in present production methods, excess pulp is separated from the seed by using a paddle-type finisher or similar piece of equipment. The cleaned seeds are dried, tempered, and pressed without decortication in continuous screw presses. The press-cake, containing from 5 to 7 percent residual oil can be returned to the citrus pulp.

Hutchman (33) reported that his company tried both hydraulic presses and screw presses to obtain an oil of the highest quality. The screw press proved to be superior. It was also found that in the heat and pressure of the screw press, a considerable amount of the fiber content of the seed was converted to a soluble, digestible food. However, after three years of operation, the company added solvent extraction of the press-cake to their operations. By the new process, practically all of the oil can be recovered as prime oil.

Von Loesecke (72) states that around 1946 or 1947 there were two producers of oil in Florida, one at Lakeland and one at Plymouth, but in 1950, very little citrus seed oil was being produced.

According to Wright (80), processing citrus seed for oil is economically feasible when the price of citrus pulp as cattle feed is low in relation to the price of vegetable oils. One ton of seed is roughly one-third oil, one-third meal, and one-third hulls. At a price of 15 cents per pound for oil, the lowest price at which seed extraction becomes attractive, the return from a ton of seed is

(Continued on Page 48)

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As Viewed from

The "PRESS" Box

• Lint Cleaner Studies

J. D. FLEMING of the Oklahoma Cotton Ginners' Association reports in a recent bulletin that quality evaluation and efficiency studies of lint cleaners will be undertaken this fall on a number of representative gins in Western Oklahoma. The study will be conducted by personnel of the U.S. Cotton Ginning Laboratory, with tests to be run on samples taken from early-, mid- and late-season cotton. "We hope the results are available for a report at our annual meeting on March 3-4, 1953," Fleming said.

• 3,500 at Cotton Day Event

COTTON PROSPECTS in Texas' Rio Grande Valley have been brighter than they are this year but pessimism was conspicuous by its absence at Valley Cotton Day held July 11 at the Texas A. & M. College Experiment Station at Weslaco. The event, sponsored by the Valley Chamber of Commerce and the Valley Farm Bureau, attracted some 3,500 farmers and others who recognize cotton's great economic value to the area. They enjoyed a barbecue, inspected the research plantings at the station, heard Dr. George Wene describe the latest methods of controlling cotton insects, and were given the results of experiments in cotton production. In addition, they saw a large display of farm equipment that included several makes of mechanical harvesters.

• Cattail Crushing

CRUSHING CATTAIL SEED isn't exactly the same as feeling that you have an old tomcat by the tail when you get in the midst of a hectic cottonseed season. But cattail seed is one of many interesting oilbearing materials discussed in the article starting on Page 13 of this issue. If you skipped the article, earlier, you'll want to go back to it, and file the information for future reference. You'll find that typha, or cattail, seed have been solvent-extracted in the laboratory and that commercial plants are making insulating material from cattail fiber.

• Water Limits Progress

WATER SUPPLIES are more and more becoming a limiting factor to national progress, says Clarence McCormick, USDA under-secretary, Washington. It takes water not only to produce milk and meat, but also for such industrial products as steel — 65,000 gallons of water to produce a ton of steel. Water demands are running 25 to 50 percent ahead of population increases, and McCormick concludes that never before have conservation measures been needed so much. By controlling water runoff from farms, he adds, we take the first step toward meeting the challenge of floods, drouth, soil erosion and public and industrial water supplies.

• Irrigate During Fruiting

WHILE FRUITING, cotton needs plenty of water, says Bob Thurmond, irrigation specialist at Texas Experiment Substation, Lubbock. He suggests that farmers constantly examine soil for moisture content. A good plan is to bore a small hole with a soil auger, removing some of the soil beneath the surface. If the soil is crumbly, irrigation is needed. When irrigated, soil should be wet down to the caliche, usually about three or four feet, Thurmond says, to help make a deep-rooted plant resistant to drouth.

• World Labor Scarcity

OTHER COUNTRIES have labor shortages along with American cotton farmers, a survey by the International Federation of Agricultural Producers shows. Canada, Switzerland, Norway, New Zealand, France and South Africa are among nations reporting serious farm labor shortages, and many others have moderate shortages. The same reason accounts for the scarcity in most countries — workers leaving farms to get higher wages in towns and cities. Germany, Yugoslavia, Jamaica and Malta are exceptions to the rule, as they report no shortages and even a surplus of farm workers in Jamaica.

• Don't Blame the Bugs

INSECTICIDES should not be wasted trying to control verticillium wilt in cotton, because this disease is not caused by bugs, Farm Advisor John Hoyt, Fresno County, Calif., points out. He said that some growers have blamed their planting seed or insects for the disease, but that it is a soil borne fungus, and the worst disease affecting California cotton. His advice to growers is to irrigate more frequently where fields are infested and to use minimum amounts of fertilizer.

• Spray Damages Cotton

NEW LEGISLATION regulating use of hormone-type herbicides may result from recent damage to several thousand acres of cotton on more than 250 farms in North Texas. State Department of Agriculture inspectors report that the loss, ranging from 10 to 100 percent of cotton, apparently was caused by spraying of the chemical to kill trees and weeds along the Trinity River channel. They believe that the spray was used according to prescribed regulations under the present law of Texas, but that strengthening of the law is needed.

• Change Bollworm Rules

PINK BOLLWORM control classifications for 14 Texas counties have been changed, according to an announcement by State Commissioner of Agriculture John C. White. El Paso, Hudspeth and Culberson Counties have been dropped from the list of heavily infested areas and reclassified as slightly infested. Counties reclassified as heavily infested are Medina, Frio, Atascosa, Karnes, Wilson, Goliad, Dewitt, Gonzales, Lavaca, Victoria and Jackson. The action brings the total of heavily infested counties to 47. White said gin sterilization procedures in these counties have been altered so that cottonseed designated for crushing can be moved anywhere in the 47-county area after only one sterilization. Cottonseed to be shipped out of the regulated area, and all seed to be used for planting, must still be processed twice.

• Cutting Insurance Costs

MONEY-SAVING tips for ginners on fire insurance costs are found in the article, "Cotton Ginners and the Cost of Insurance," starting on Page 24 of this issue. The Secretary of the Mississippi State Rating Bureau tells how the rate structure might be set up for a fictitious gin, and then explains how the plant could make specific improvements that would reduce insurance costs. Many ginners may want to check their own gins for possible rate-reducing changes listed in the article.

Lubbock's New Clapp Park Honors Cotton Leader

K. N. Clapp, Anderson, Clayton and Co. representative at Lubbock, Texas, has been honored for his community leadership by having a new city park named for him.

Clapp has been a member of the City Parks Board since it was created and chairman for 23 years. He is the only member of the original board still serving on it. A native of Tennessee, he has been a Lubbock resident since 1924.

Now in the process of development, K. N. Clapp Park will include 75 to 100 acres in south Lubbock. Plans call for the completion of a swimming pool in the park by next summer.

Including Linters as Seed Grading Factor Proposed

USDA has announced a proposal to include linters as a factor in determining grades of cottonseed. Its use would be optional in determining the quantity index for seed. The Department proposes to make the amended cottonseed standards effective by August, 1952, and persons interested were to have sent written views or arguments to the director, PMA cotton branch, Washington, not later than July 23.

A linters factor has long been recognized as a needed improvement in the grading system, says USDA, particularly in determining the grade of upland cottonseed in western areas of Texas and Oklahoma, and of American Egyptian cottonseed in western states.

Hearings on Oil and Lard Futures Trading July 28

Hearings under the Commodity Exchange Act will start in Washington, July 28, to consider the establishment of speculative limits on futures transactions in cottonseed oil, soybean oil and lard, USDA has announced. They will begin at 10 a.m., eastern daylight time, in Room 149-W, USDA administration building.

Cake is discharged in semi-dry condition by tapping leaves with rubber mallet. Air-blown cakes separate readily from all-metal leaves. All leaves are exposed as a unit for fast, easy cleaning.

New NIAGARA FILTER speeds up filtration when solids % is high!

Cuts cleaning time to *minutes!* Boosts filter capacity *2 to 3 times* in same floor space!

This new Niagara Style H* Filter does the work of several conventional filter presses of equivalent area.

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ENDS CLOTH REPLACEMENT AND WASHING. All-metal filter leaves proved in use in Niagara vertical filters completely eliminate press cloths. You save entirely the costs of cloth washing, handling and replacement.

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Lint Cleaning at Gins

By VERNON P. MOORE and CHARLES M. MERKEL

Respectively, Cotton Technologist, Cotton Branch, PMA, and Agricultural Engineer, BPISAE, U. S. Cotton Laboratory, Stoneville, Mississippi

THE LIMITATIONS of current types of seed cotton cleaning machinery have been rather well established by laboratory tests and studies of commercial ginning operations. These extensive studies have revealed that it is usually inadvisable to subject seed cotton to more than the equivalent of 24 cylinders of cleaning with adequate overhead bur extracting machinery, extractor feeders, and a conventional multistage drying system. Greater amounts of overhead machinery will usually result in fiber damage and excessive bale weight losses which are not compensated for by grade improvement. Furthermore, excessive machinery represents extensive and, at times, prohibitive investments and operating expenses on the part of the ginner.

It has often been desirable to clean particularly trashy cottons to a greater extent than has been possible when only conventional gin cleaning machinery has been available. From the farmer's standpoint, in many instances additional cleaning has been, and is, not only desirable but necessary and often means the difference between profit and loss when various methods of mechanical harvesting are employed. Lint cleaners were developed to accomplish, without fiber damage, this extra cleaning[1]. In the preliminary stages of research on lint cleaning, tests were made by using the various methods and types of mill lint-cleaning equipment. Numerous difficulties were experienced in trying to adapt mill machinery principles to gin use. In most instances, the machines would neither operate satisfactorily nor preserve the preparation factor of grade at gin capacity. Therefore, different principles had to be adopted, which are now familiar to most ginners throughout the Cotton Belt.

The lint cleaners—the product of research and the developmental work—have been tested under extreme operating conditions on cottons varying widely in foreign matter content and fiber properties. The results of the various tests which were carried out at the U.S. Cotton Ginning Laboratory, as well as economic and technological evaluation made under field conditions in different sections of the Cotton Belt, have been reported in full[2]. Conclusions with respect to the cleaning action and grade benefits of the lint cleaners are now well known, especially since 900 gin plants or 12 percent of the operating gins in 1951 employed lint cleaners in cleaning more than 3 million bales of cotton. Also, concurrently with the development of this information, it was concluded that such practices as fast rates of feed to the lint cleaners in combination with excessive drying air temperatures and excessive amounts of seed cotton cleaning machinery will prevent the realization of full grade improvements and will result in significantly impaired spinning value of lint cotton. The additional power required for the operation of lint cleaners and their auxiliary fans and equipment will range from 20 to 40 horsepower for a 4-stand gin. The cost of the extra power is very small in comparison with the over-all power requirements for the entire plant. However, at similar volumes of about 3,500 bales and similar overhead equipment, studies have shown that ginning costs will be slightly over $1 per bale more for lint-cleaner-equipped gins when added initial cost of equipment, depreciation, interest on investment, labor and power are considered. The studies revealed that the average foreign-matter removal by lint cleaners amounted to 6.8 and 11.6 pounds per bale for hand- and machine-picked cotton, respectively. It was noted that gins which were not equipped with lint cleaners generally employed higher drying temperatures than did gins equipped with lint cleaners. Therefore, the gins which were not equipped with lint cleaners removed more moisture and, consequently, more weight from the bale by drying than did gins equipped with lint cleaners. Seasonal net bale value benefits, after taking into consideration added ginning cost for lint cleaning and extra drying of nonlint-cleaner-equipped plants, averaged $1.20 and $2, respectively, for hand- and machine-picked cotton. Of course, the monetary benefits from lint cleaning will vary from season to season, depending on weather conditions and consequent potential grades of cotton coming to the gin, prevailing premiums and discounts between the various grades, and numerous other factors.

The lint cleaner, like all other machines in a gin plant, must be operated carefully in accordance with recommended procedures and kept in good repair and proper adjustment if the results are to be those which the machines were designed to give. To obtain maximum grades, and at the same time preserve the fiber quality, observations throughout the developmental work indicated the importance of operating the gin stands with relatively moderate rates of feed and loose seed rolls, in order to keep within the capacity for which the lint cleaners were designed. Tests have shown that the cleaning effectiveness of the lint cleaners was reduced by fast rates of feed and that the nep count was increased significantly. The only real loss in yarn quality was shown for fast feeding, whether performed with lint cleaning or without. Fast feeding resulted in a slight reduction in average yarn appearance grade and in a consistent and significant loss of more than 4 percent in yarn strength in both instances.

All saw-cylinder type lint cleaners employ a condenser or an air screen separator ahead of the cleaning saws to bleed off air conveying the lint cotton from the gin stand. The amount of air to be separated from the lint prior to cleaning varies from 50 to 100 percent for different designs of lint cleaners. In any case, the manufacturer's recommendation for balancing the air pressure in the cleaner should be followed closely, since the amount of air passing through the saw cylinder and trash chamber will influence its cleaning effectiveness and smoothness of operation.

In the case of lint cleaners using an air-blast doffing system, it is important that the gin stand doffing pressure be kept low, consistent with good operation, in order to hold power requirements to a minimum, reduce the amount of air to be handled by the lint cleaner condenser, and reduce the possibility of backlash in the gin stands. With the adequate drying systems now employed in modern gins, it has been found that lower nozzle pressures may be used effectively for doffing than was the case a few years ago. The lint cleaner nozzle pressure should be held to about the same as that which would normally be used in the gin stand.

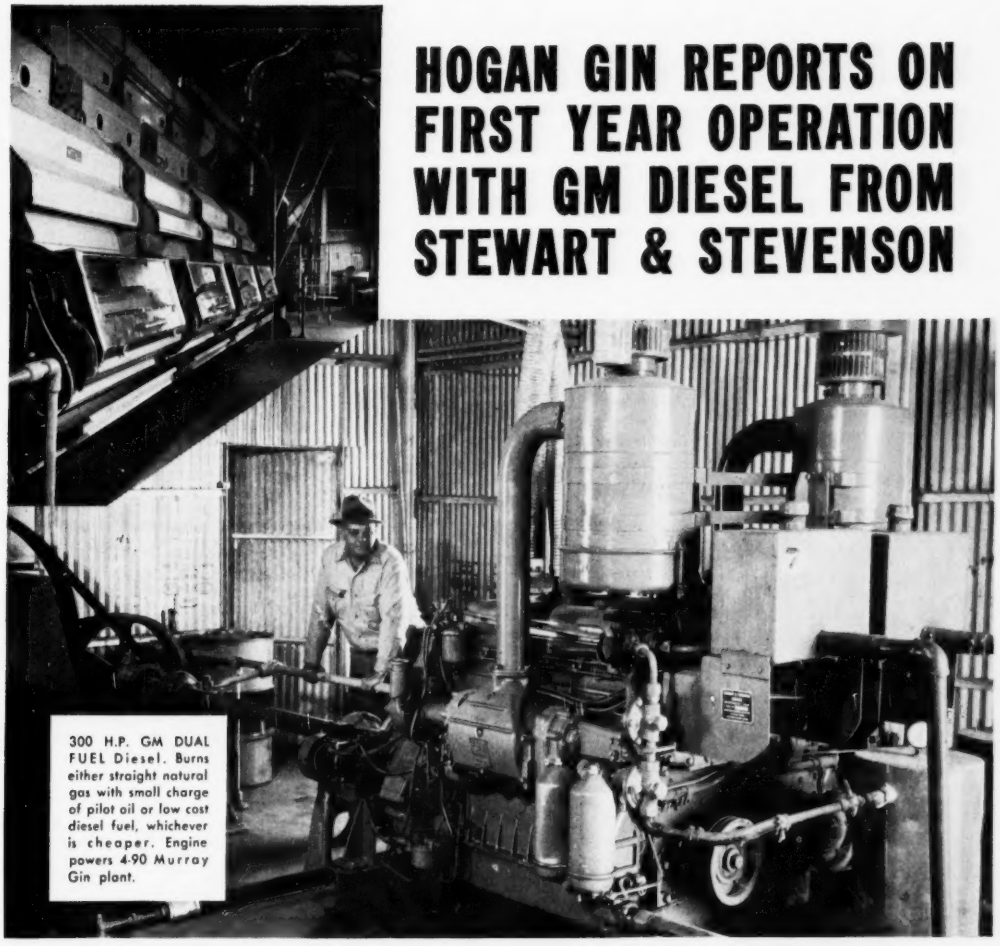
When lint cleaners are installed, particular attention should be given to the lint flues leading from the gin stand to the cleaner so as to be certain that all inside surfaces are perfectly smooth, with no rough edges of metal or bolt heads projecting into the flue which will cause tags of cotton to accumulate. The lint cleaner bypass valves should also be inspected carefully for rough edges and faults preventing complete closure. The lint flues should be examined frequently for several days after being placed in operation for lint accumulation or any rough spots which may have been overlooked during installation. Should any tags of cotton be found, steps should be taken to eliminate the rough spots causing them. These lint accumulations, if allowed to increase, will reach sufficient size to seriously damage the saws and grid bars when they break loose and enter the cleaner.

The lint cleaner condenser and air vent flues should be cleaned regularly

[1] Stedronsky, Victor L. and Shaw, Charles S. The Flow Through Lint Cotton Cleaner. Circular No. 858, Nov. 1950, pp 30.

[2] Gerdes, Francis L., cotton technologist, Cotton Branch, PMA "Cotton Lint Cleaning at Gins—An Evaluation from the Standpoint of Cotton Quality and Economic Factors." U. S. Dept. of Agr. May 1951. (Processed.)

HOGAN GIN REPORTS ON FIRST YEAR OPERATION WITH GM DIESEL FROM STEWART & STEVENSON



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"Our total operating cost with GM Diesel power was less than 22c per bale," says Reiley Hogan.

"We were six weeks late in getting started, and only ginned 2710 bales this season. Our average rate was 6 minutes per bale when we had cotton to run steady. A lot of our ginning was sporadic — gin a few bales, then wait. The GM Dual Fuel Diesel enabled us to start and stop as desired without a lot of wasted power. Our total power cost for fuel, oil and maintenance was slightly over 21c per bale.

"The cotton buyers in our area paid as much as $20.00 per bale over the average for cotton we ginned, as it graded 2 to 4 grades better than average. We feel that the smooth power of the GM Diesel together with the fact that it had a surplus of power contributed to the good grades we made. Incidentally, I 'cranked up' and ginned the last bale by myself at the end of the season."

Contact your nearest Stewart & Stevenson representative for full particulars on this new type GM DUAL FUEL power Unit. Sizes from 40-600 H.P.

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each day to insure against chokage and back pressure. Proper maintenance of condenser doffing rollers is necessary to insure satisfactory operation of lint cleaners so equipped. The rollers should be kept in adjustment and the flights replaced when they become worn sufficiently to lose their effectiveness as an air seal. Air blowing by the doffing roller will disturb the bat of cotton entering the feed rollers; this disturbance of the bat will cause chokages at the feed rollers and the loss of usable fiber with the lint cleaner trash.

The speed of the air screen separator set by the manufacturer should not be changed, since in some cases departure from this speed will cause the operation of the lint cleaner to be affected materially. The air separator screens should be inspected to ascertain whether the surface is smooth so as to eliminate the possibility of lint accumulating on rough spots. In other types the condenser drum speed should be adjusted to provide a thin, even bat to the feeding rolls.

The lint cleaner saws should be checked and cleaned at least once each day to remove sticks, stems or other extraneous matter impaled on the saw teeth. The saws should be kept sharp and in good operating condition. Since lint cleaners have been in use only a few years, no accurate information is available as to the frequency with which saws should be sharpened or replaced.

Grid bars and air-blast nozzles should be inspected regularly for alignment and proper clearance. In the case of lint cleaners using a brush in lieu of an air-blast doffing system, the brush should be given the same care and maintenance as given a gin stand brush. For proper doffing, the brush should mesh with the saw to the depth of the saw tooth.

The trash disposal units of the cleaner should receive periodic attention. Conveyor belts shoud be kept tight and dropper wheels should be inspected for damage and wear. Glass inspection doors which are cracked or broken should be replaced to prevent disturbance of the proper air movement in the cleaner.

Mid-June Average Farm Prices Drop Slightly

A decline of one point (one-third of one percent) in the index of prices received by farmers from mid-May to Mid-June is reported by USDA. At 292 percent of the 1910-14 average on June 15, the index compares with 293 a month earlier and 301 a year ago.

A substantial decline in beef cattle prices, together with lower prices for other meat animals, dairy products, wheat, oats, barley and several truck crops contributed to lowering the index. These declines were nearly offset by higher prices for cotton, most oilseed crops, potatoes, corn, eggs, poultry and some fruits.

Mid-June average U.S. price of cottonseed was quoted by USDA at $61.90 compared with $95.60 on June 15, 1951. Farmers were receiving an average price of $3.67 a bushel for flaxseed, against $3.40 a year ago; and 10.3 cents per pound for peanuts, compared with 10.8 cents in mid-June, 1951.

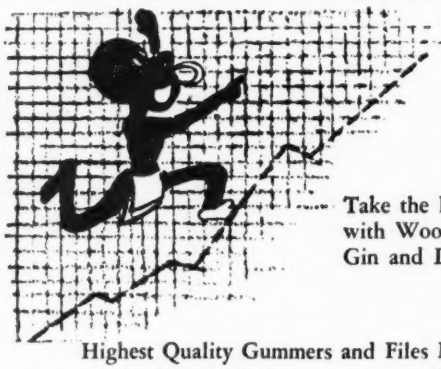
Average price paid by U.S. farmers on June 15 for cottonseed meal was listed as $5.20 per hundred pounds, compared with $4.86 a year ago.

Ernest Black, Oil Mill Leader, Ill at Macon

Ernest D. Black, who has been seriously ill in Emory University Hospital, Atlanta, has been taken to his home, 2622 Stanislaus Circle, Macon, Ga. He is reported to have stood the trip well and to be glad to be back home. As vice-president and manager of the Central Cotton Oil Company, a past president of the National Cottonseed Products Association, and a leader in many industry activities, he is one of the most widely known and loved leaders in the cottonseed crushing industry.

Keathley Joins Pillow on Return from Service

Friends of Frank M. Keathley will be glad to hear of his return from the armed service, and his association with the Jack W. Pillow Company, Memphis, Tenn., as Texas and Western Representative.



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1¼" Duplex Gummer Files, Roachback and Standard. Made of high grade steel for Wood's Duplex Machines, these same gummer files are also available for other makes of portable machines. When ordering, specify your make of machine. When ordering for Wood's Duplex Machines, specify make of gin.

5-HEAD ROTARY GUMMER-FILER

The "QUINT" No. 55

Fits any gin or linter saw 9" to 12½" in diameter. Five heads adjust to variations in diameter or alignment for dual side dressing and pointing. 248 lbs. Other Models available: 14X, 28X, and 33. Machines may be equipped for use on 176 saws.

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Registers accurately, 230° Fahrenheit. 19" x ½".
Available with or without patented Loggins Shield. Write for complete information.

In Mississippi, Sept. 1-2

Spinner-Breeder Meet Planned

■ NINTH annual conference to be sponsored by Delta Council to include tours, panel discussions and talks by cotton leaders.

The ninth cotton Spinner-Breeder Conference will be held in Greenville and Stoneville, Miss., Sept. 1-2, J. R. Flautt, president of Delta Council, has announced.

Sponsored annually by the Council's Advisory Research Committee, the Conference is alternated each year between cotton breeding and cotton spinning areas. In 1951 the Conference was held at Clemson, S. C., with Clemson College and the South Carolina Textile Manufactuers Association as hosts.

Flautt said that cotton breeders of the Delta area would be hosts to the meeting this year. Tours of cotton breeding work and research facilities will be included as part of the program.

The keynote address at the opening session of the Conference on Sept. 1 will be made by Burris C. Jackson, chairman, Statewide Cotton Committee of Texas. Claude L. Welch, director, production and marketing division, National Cotton Council, Memphis, will lead a panel discussion on improving cotton varieties and efficient production practices to meet mill requirements, consistent with profitable farming.

On Sept. 2, Alfred M. Pendleton, cotton ginning specialist, USDA, Dallas, will serve as moderator for a panel discussion on developments toward improved cotton handling, ginning, and marketing practices for increased market outlets. Full program details will be announced in the near future.

The Spinner-Breeder Conference was originally conceived for the purpose of providing a closer working relationship between the various components of the cotton industry from the cotton breeder to the cotton spinner.

"This working relationship can only be developed through an understanding of mutual problems and a united effort on the part of all segments of the industry to solve these problems," Flautt said.

"Through the Spinner-Breeder Conference, cotton breeders throughout the U.S. have been brought in close contact with cotton manufacturers. From these conference discussions, action has been initiated whereby cotton breeders have redoubled their efforts to produce cottons to meet mill demands and at the same time to fill producer requirements."

Requests for hotel reservations should be made direct with the manager, Hotel Greenville, Greenville, Miss.

Seedsmen's Short Course Scheduled July 22-24

The annual Seedsmen's Short Course is scheduled for July 22-24 and will be held in the Memorial Student Center on the Texas A. & M. campus. Sponsors of the three day meeting are the Texas Seedsmen's Association, Texas Department of Agriculture and Texas A. & M. College.

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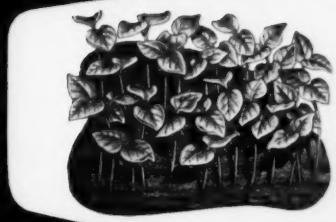

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COTTON GINNERS AND THE COST OF INSURANCE

By J. F. BARKSDALE

■ PRINCIPLES OF INSURANCE rating of interest to all ginners are outlined by the Secretary of the Mississippi State Rating Bureau in this talk which was made at the recent convention of the Louisiana-Mississippi Cotton Ginners Association.—ED.

WE OF THE MISSISSIPPI State Rating Bureau are grateful for this opportunity to appear again on your program. I recall with a great deal of pleasure taking part in your convention at Greenville a few years ago.

I am sure that your invitation to me was prompted by your concern over insurance costs. Certainly we should all be concerned over the general cost trend.

Reading from a United Press release which appeared in the Jackson, Mississippi, "Daily News" on June 3, 1952:

"Consumer now pays $24.47 for basket of groceries which cost $10 before World War II. Government economists predict that the cost will be even higher in a few months. Grocers have been authorized by the Office of Price Administration to boost prices, effective today, on fourteen types of food."

This very disturbing increase in price is not in any way uncommon. Similar increases have occurred in practically any item you can name. A five-cent magazine now costs 15 cents. What will you charge for ginning a bale of cotton in 1952 as compared with what you charged in 1940?

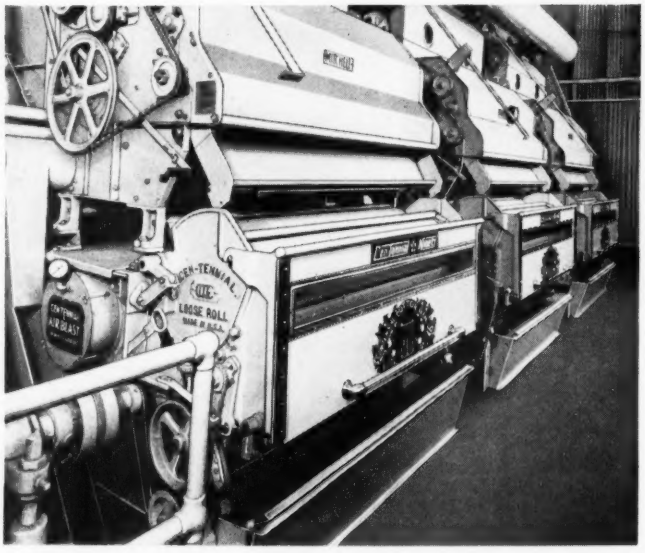
The only item of which I have knowledge that sells for less in 1952 than in 1940 is property damage insurance. The story of this almost amazing exception in this state is, to a marked extent, the story of the Mississippi State Rating Bureau.

As directed by State law, the Bureau was organized in 1924 for the primary purpose of establishing uniform property damage insurance rates in Mississippi which would be fair to the insured and to the insuring companies. The law stipulates that, based on the latest available five-year experience, rates shall be adjusted annually so that the companies may not earn as net profit more than five percent of the premiums collected. You can well appreciate that with the average earnings of the company set at this low figure, some of the approximately 180 companies operating in Mississippi will, by diligence or luck or both, earn well in excess of five per cent; it follows that many will earn less than five percent and that a substantial number will actually lose money each year in the State.

In maintaining a record of the experience figures on the various classes for annual review, the cotton ginning plants have been placed in a classification of their own. This is proper, since certainly the rates on gins should not be affected by the experience on churches, dwellings, schools, mercantiles or other classes.

Thus the total amount of property damage insurance premiums which you must pay is put squarely up to you. If the loss experience on gins is favorable, rates will be reduced; if the experience is unfavorable, rates must inevitably be increased.

You will take no pride in the fact that for each $1 the companies have received in property damage insurance premiums on Mississippi gins during the latest five-year period on which figures are available, these companies have incurred losses and expensees totaling $1.09. In view of this fact, we had no alternative last November 1 than to seek and obtain approval of the State Insurance Commission for removal of a 15 percent experience credit on other



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Install Cen-Tennial 5-Star Ninety Saw Gins for greater Capacity and Better Samples.

They can be installed in same space as 80-saw Gins.

66" Extractor Feeders are standard for 5-Star Ninety Saw Gins.

Illustration: A Three 5-Star Ninety Saw Gin Installation.

Write for Bulletin 51-G

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THE SINKERS CORPORATION
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than all-steel gins which had been granted a few years earlier.

The experience on all-steel gins has continued satisfactory and the credit to this class was not disturbed. As a matter of fact, rate credits of up to 30 percent are available on the all-steel plants in cases where a Coinsurance Clause is made a part of the insurance contract. This clause is, simply stated, a warranty by the insured that he will carry insurance amounting at least to a stipulated percentage of the property value at the time of any loss, and your local insurance agent will be glad to explain the detailed operation of this clause to you. In further recognition of the experience on gins of the all-steel class, our rules were revised, effective November 1, 1951, to permit the issuance of term contracts on this class at reduced multiples of the annual rates. As an example, a three-year policy may be issued at 2½ times the annual premium, a five-year policy at four times the annual premium.

To this point, we have considered only the experience on gins as a group. Nevertheless, of considerably more importance to you is the fact that detailed inspections are made of each plant and individual rates are established on each building at each plant. The physical and protective features found at your plant are of far greater importance from a rate standpoint than is the overall experience on the class. To emphasize this fact, I have prepared a rate survey on a strictly hypothetical plant which includes numerous undesirable features that are frequently encountered. A summary of the rate structure on this fictious plant follows:

Basic Rate—2-story, SIC Gin	$4.50
No Water Barrels with Pails	1.00
Dryer Furnace in Ginning Section	.10
Gravity Feed of Fuel to Engine	.25
Gasoline Tank Located Above Ground Only 20 feet from Gin	.50
Feed Mill in Gin	1.50
Baled Cotton Storage Platform Adjoining Gin	.25
Seed Cotton Storage House Only 25 Feet from Gin	.50
Defective Electrical Wiring	.25
Burning Refuse in Open Pile 35 Feet from Gin	1.00
Total	$9.85

This results in the almost prohibitive rate of $9.85. Assuming that the owner of this plant is interested, he may make the following improvements with rate credits as indicated:

1. Install two water barrels with two pails at each. Credit, $1.00.
2. Cut dryer furnace off from ginning action by means of a lint- and dustproof partition having self-closing doors on any openings. Credit, $0.10.
3. Convert engine from gravity to pump feed of fuel. Credit, .25.
4. Relocate fuel tank—at least 50 feet from building if above ground, at least 5 feet if top of tank is 2 feet under ground. Credit, .50.
5. Place feed mill in a separate building at least 40 feet from the gin. Credit, $1.50.
6. Erect a baled cotton storage platform at least 40 feet from the gin and discontinue overnight storage of baled cotton within 40 feet of the gin. Credit, .25.
7. Create a minimum clear space of 40 feet between seed cotton storage house and gin. Credit, .50.
8. Correct all defects in electrical wiring to conform with current standards of the National Electrical Code. Credit, .25.
9. Extend trash flue so that a minimum of 100 feet clear space will prevail between burning pile and any building. Credit, $1.00.
10. Install two 2½-gallon approved type chemical extinguishers. Credit, .25.
11. Ground gin machinery to prevent the accumulation of static electricity. Credit, .25.
12. Attach carbon dioxide extinguishing system to lint flue in approved manner. Credit, .25.
13. Convert building to one story. Credit, .25.
14. Replace wood floor with concrete. Credit, .25.
15. Replace all machinery containing wood with all-metal machinery. Credit, .50.
16. Replace combustible gin building with an all-steel structure. Credit, .75.
17. Arrange trash-disposal equipment so that all trash will be properly discharged from the building. Credit, .25.
18. Install inside standpipe with hose in conformance with standards. Credit, .25.
19. Maintain standard watchman's service. Credit, .25.

Assuming all of these improvements were made to our hypothetical gin, the owner would have reduced the fire insurance rate from $9.85 to $1.25. This figure, considered in connection with the 15 percent experience and the 30 percent coinsurance credits mentioned above, would result in a net annual fire rate on the building and machinery of .74. Had the gin been located in a well

(Continued on Page 31)

BULK-FLO gives positive, gentle handling—full or partially loaded

LINK-BELT's combined feeder-conveyor-elevator profitably handles hundreds of materials

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YES, only BULK-FLO gives you all these advantages in a single unit . . .

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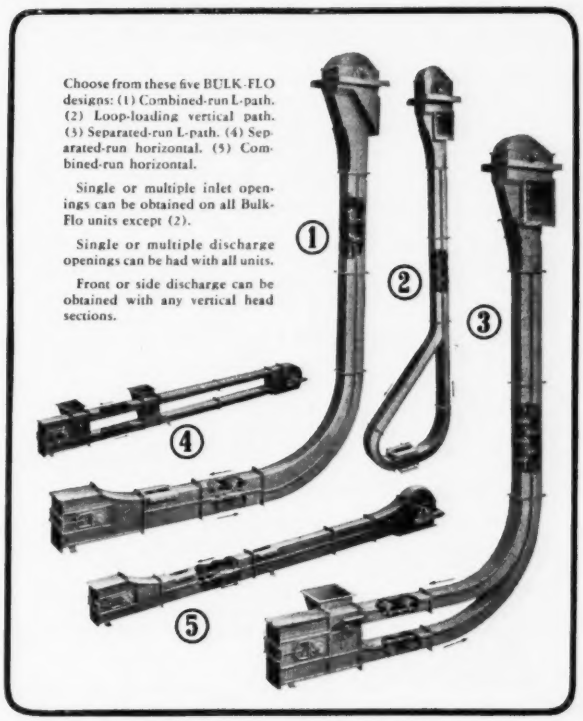
Ask your Link-Belt representative for further information. Or write for your copy of Book 2475.


Choose from these five BULK-FLO designs: (1) Combined-run L-path. (2) Loop-loading vertical path. (3) Separated-run L-path. (4) Separated-run horizontal. (5) Combined-run horizontal.
Single or multiple inlet openings can be obtained on all Bulk-Flo units except (2).
Single or multiple discharge openings can be had with all units.
Front or side discharge can be obtained with any vertical head sections.
1
2
3
4
5

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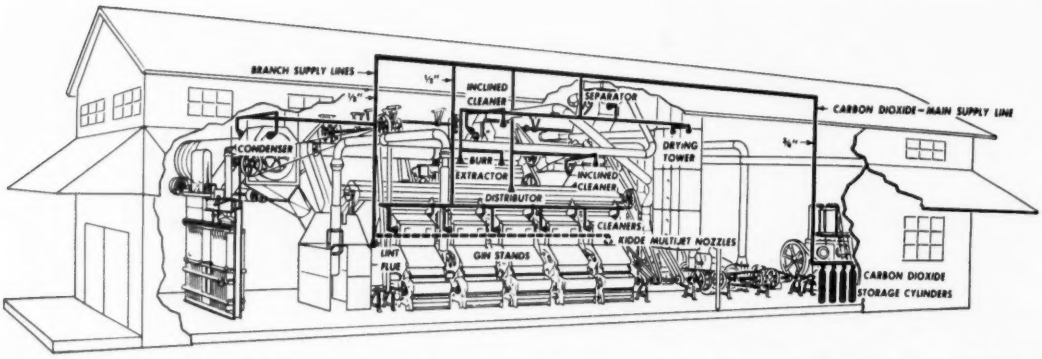
FEEDERS - CONVEYORS - ELEVATORS

LINK-BELT COMPANY: Atlanta, Dallas 1, New Orleans 12, St. Louis 1, Charlotte 2, N. C., Baltimore 18, Birmingham 3, Houston 1, Jacksonville 2.



THE CARBON DIOXIDE piping arrangement of the Kiddle fire extinguishing system for a cotton gin is shown in this sketch. Piping joins the manually-actuated carbon dioxide cylinders (right) with condenser, separator, drying tower, burr extractor, inclined cleaner and lint flue. Release of the inert gas into the gin smothers the fire by excluding oxygen.

In Mississippi Tests

Carbon Dioxide Cuts Loss in Gin Fires

■ USE OF extinguishing systems to smother fires in seconds with inert gas, reducing down-time, is explained by firm.

Recent fire extinguishing tests conducted in Mississippi slashed cotton gin fire losses and cut down-time by seventy-five percent according to Walter Kidde & Company Inc., of Belleville, N. J. These results, which were achieved with carbon dioxide fire extinguishing systems, indicate the vast majority of gin fires can be extinguished immediately with a saving of millions of dollars annually to U.S. ginners.

Statistics show how serious the cotton gin fire menace is. The Arkansas-Missouri Ginners' Association in a 1952 report on its activities for the previous year states that 137 fires struck 129 of its members' gins. While no estimate was made of the dollar loss involved, fires occurred most frequently in overhead cleaners, separators, roll boxes, and burr extractors and resulted from rocks or metal, matches, or friction.

Another recent report by the National Board of Fire Underwriters' states that "the magnitude of fire losses in processing and storage operations has been considerable and excessive. In one record-breaking season, some 600 individual fires, not including hundreds of unreported small losses, were reported by insurance groups. These involved an all-time high of almost 100,000 bales, or an economic loss of nearly $15,000,000. The fire-damaged ginning plants represented another $2,000,000 loss in property."

Here are the results obtained by just one ginner in Mississippi. Prior to the installation of the Kidde carbon dioxide system, the gin experienced periodic fires which were fought with water and resulted in an average down-time of three hours per fire. As this gin earns $90 per hour while operating, each fire cost $270. This figure completely ignores water or fire damage to the gin itself.

For the 1951 season, this gin was equipped with a built-in, carbon dioxide, fire extinguishng system. That year nine fires struck the gin. Operation of the system extinguished each one in seconds, reduced down-time to about thirty minutes per fire, and the speedy action of the inert agent permitted no damage to the ginning machinery.

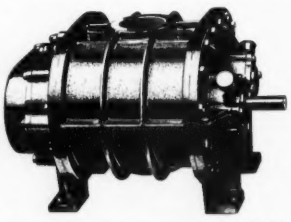
The gin owner explained that the nine fires caused shut-down totaling only five hours and resulted in an operating loss of $450. Going on previous experience, had these same fires occurred and been attacked with water, they would have cost $2,430. "In just the first year alone," he said, "I figure I saved almost $2,000, which is substantially more than the cost of the carbon dioxide system."

For example, insurance underwriters in the state of Mississippi have granted rate reductions for gins protected with Kidde carbon dioxide systems, according to this manufacturer. Other cotton states are now considering similar action. Insurance rate reductions may result in further savings for ginners.

The Kidde method for cotton gin fire extinguishing simply inerts the interior atmosphere of the gin with carbon dioxide. The introduction of the gas excludes oxygen, without which fire cannot exist.

Carbon dioxide is stored as a liquid, under pressure of 450 pounds per square inch, in cylinders connected by piping to the gin. If fire breaks out, the cylinders are manually released and a sufficient quantity of the agent rushes through piping under its own pressure and discharges, as a gas into the condenser, separator, drying tower, burr extractor, inclined cleaner, and lint flue through multijet nozzles flanged into the ginning equipment. It takes only seconds for the released carbon dioxide to exclude oxygen in the gin and extinguish the fire. Unlike water, says the manufacturer, carbon dioxide does not damage machinery, is a non-conductor of electricity, and leaves no mess to be cleaned up following the blaze. Recharge of the cylinders is easy and inexpensive.

BEFORE YOU BUY ANY BLOWER COMPARE THESE ESSENTIALS . . .



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These factors are essential to fast, economical, reliable pneumatic conveying. No blower is worth its cost, however little, that fails to meet these requirements. When you compare, you'll find that simple, sturdy, dependable R-C Blowers have the inherent qualities to give you these results during many years of operation. Send for Bulletin 21-B-37 or tell us your needs.

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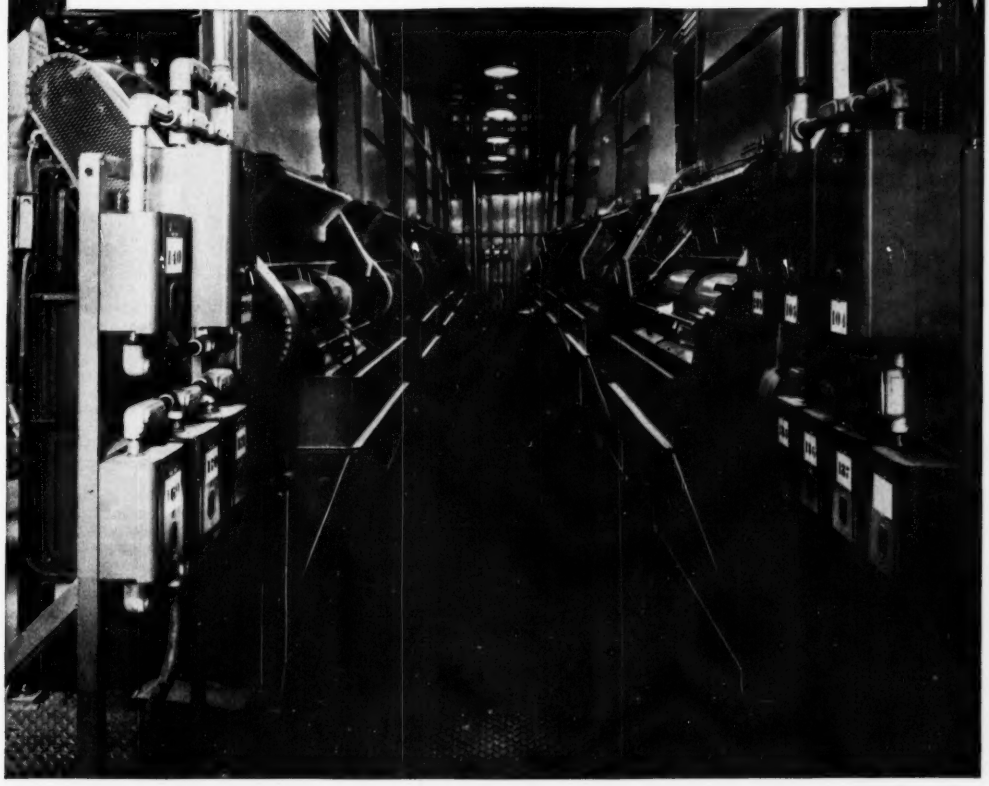

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From our Washington Bureau

By FRED BAILEY

Washington Representative

The COTTON GIN and OIL MILL PRESS

• **Farm Vote Battle**—The political battle for the 1952 farm vote will be fought out on one central issue: At what level should the government support farm prices?

The Republican platform left the door wide open for the Democrats to exploit to its fullest potential the proposition that high-level supports should be guaranteed by the government. Washington bureaucrats are all for making the most of that opportunity.

It was not possible in Chicago to gloss over the inner conflict that led to a farm plank that attempts to avoid the issue of supports. The GOP platform studiously avoids mentioning the level of supports, and instead offers full parity as an "objective" to be attained through loans on non-perishables, farm storage, credit and crop insurance. It favors marketing agreements and other voluntary methods for supporting non-perishables.

This is more surprising in view of the fact that Republican congressmen, only a week earlier, were vying with Democrats to see which could be the strongest for at least 90 percent of parity supports as a government guarantee.

Legislation to continue use of the dual parity formula through 1955, and to make 90 percent of parity supports for the basic crops mandatory through 1954 was vigorously supported by an overwhelming majority of both parties. The Republican platform seems to repudiate the stand of party members in Congress. The opportunity that offers as campaign matreial will not be missed by the Democratic candidates.

• **Democrats Confident** — In contrast with 1948, when Washington Democrats were resigned to defeat, there is quiet confidence this year that "everything is going to be all right in November." Likewise, that feeling is more evident in Washington than it is in some other parts of the country.

The official feeling here is that there are so many Democrats in the country that a Republican victory is only a remote possibility. Democrats would, of course, have preferred Sen. Taft as their November opponent, but they take the calm view that Gen. Eisenhower can be beaten. They figure on rubbing some of the glamor off him by next fall.

Government officials whose jobs depend on who occupies the White House after next January are not especially exercised as to whom the Democrats nominate. There is no evidence of such a bitter conflict as marked the Republican convention. They are confident that whoever the nominee (and they hope the next President) is that he would not seriously upset the status quo.

As of now only one thing seems to be reasonably certain: It's going to be one of the roughest campaigns in years. Both parties seem willing and anxious to slug it out. Republicans will try hard to make corruption in government the major issue. Democrats will gloss over that and stake their hopes of victory on the claim that Republicans led the country into a depression and we've had great prosperity under Democratic administrations.

• **Cotton Opinions Vary** — There probably are more differences of opinion as to the futrue of cotton than almost any other agricultural commodity. Some see it as having a bright future; others that it will be forced to the wall by synthetics.

For those who are optimistic the joint USDA-Land-Grant-College production capacity survey is highly encouraging, taken strictly from a production capacity standpoint.

The report recognizes that cotton will be "subjected to increasing pressures from alternative farm enterprises and from non-farm industries," but expresses confidence that it will survive and prosper as the trend toward more efficient technology on cotton farms is accelerated.

Measured in terms of farm capabilities, cotton production could reach 17 million bales on an annual basis by 1955, the report concludes. This would be attained through increased yields per acre on about four-million fewer acres than in 1951. Acreage would be cut by 14 percent while the yield per acre could be increased by 29 percent, the report states.

As projected by the report, acreage in the Southern Plains would be reduced by 2½ million—from 14 million in 1951 to 11½ million in 1955. Other acreage reductions would include 10 percent in the Appalachian region, 4 percent in the Southeast, 13 percent in the Delta States, 29 percent in the Mountain States and 4 percent in the Pacific.

The report figures that the average yield per acre can be increased to 360 pounds of lint cotton. Percentages of increase over 1951 include 35 percent in the Appalachian, 20 percent in the Southeast, 22 percent in the Delta, 41 percent in the Southern Plains, 12 percent in the Mountain States and 15 percent on the Pacific Coast.

The report estimates that if labor-saving devices are adopted to the extent considered feasible by 1955, man-labor requirements per bale of cotton could be nearly a fourth less than in 1951. In terms of replacement of hand labor, the projected increase in use of mechanical harvesters would overshadow all other developments. More than 5 million bales, or approximately 31 percent of the projected 17-million bale crop, would be harvested mechanically.

Machines would be used to harvest about 70 percent of the crop in the far Western states, about 48 percent in Texas, and about 16 percent in the Delta. The estimate does not take into account improvements such as increased use of herbicides and pesticides.

On all of this there is, of course, one big IF: The production can be attained if demand and prices are such as to encourage production at 17 million bales on a sustained basis.

• **Picking Wage Not Settled**—The question of minimum picking rates to be paid Mexican nationals under the labor agreement still has not been settled despite temporary agreement by Mexico to recede from the $2.50 per hundred pounds minimum in the Lower Rio Grande Valley.

The U.S. and Mexico could not reach agreement on minimum picking rates when the labor contract was being drawn. Mexico at that time insisted on the $2.50 as a minimum. The U.S. offered only the "prevailing rate" in each locality.

Early in July the Labor Department sent a certification for pickers in Willacy, Cameron and Hidalgo counties at $2 per hundred pounds. Mexico accepted the certification, but took pains to point out that this did not mean it was receding from the $2.50 demand.

Labor Department officials say they will continue to make certifications on the basis of "prevailing rates" in each area and that it will not agree to a flat minimum at the higher figure. They are confident that these certifications will be honored.

• **Gins, Mills Not Exempt**—Recent action of the Wage Stabilization Board in exempting agricultural workers from the wage ceiling does not affect cotton gin and mill employes. This is the official interpretation given by both the WSB and the Labor Department Wages & Hours Division.

"We hold," a Wages & Hours official told THE COTTON GIN & OIL MILL PRESS, "that gin and mill workers are not agricultural employes and therefore not included in the exemption."

Under the law as it now stands, gin and mill operators employing 8 or fewer men are exempt anyway. Also exempt are workers receiving less than $1 an hour. Also still in effect is the 14-weeks seasonal exemption from overtime provisions of the law.

ARA Names M. R. Clarkson As Deputy Administrator

Dr. M. R. Clarkson became deputy administrator of the Agricultural Research Administration on July 9. He will assist Dr. Byron T. Shaw, administrator, in directing the work of six scientific bureaus, the Office of Experiment stations, and the coordination of all Department research other than economic.

He will continue direct responsibility for defense activities and will play a major role in program development. He succeeds Dr. Shaw, who was appointed administrator of the ARA last January. A veterinarian, Dr. Clarkson aided in the fight on foot-and-mouth disease in Mexico, and is a member of the Joint Commission for Eradication of that disease set up by the governments of the two countries.

Clothes from Awning Canvas Featured

Fashions created from canvas awning by a Memphis artist and worn by a Memphis model were featured in color pictures in This Week, Sunday magazine supplement of many leading newspapers, on July 6. The project was sponsored by the National Cotton Council in its program to use cotton canvas for clothing as well as for awnings.

Clothing designed by Mrs. Kathryn Huckaba, commercial artist, was worn by Miss Jo Wilhelm in the magazine scenes. Mrs. Mary Alice Stewart of the Council sales promotion staff made the arrangements for the national publicity given cotton by the magazine.

Ginners and the Cost of Insurance

(Continued from Page 26)

protected town, even this figure would have been substantially reduced.

This illustration has not been offered with the hope or even the desire that you remember the various charges and credits or that you employ it as a guide in improving your plant. Rather, it was intended to show that, in the true analysis, it is you who determines your insurance cost. We of the Bureau merely serve as umpire, calling the balls and strikes—the hazards and the precautions—as we find them.

Either your insurance agent, your insuring company or our Bureau will be glad to outline to you in detail recommendations for the improvement of your individual plant. The responsibility of complying with or ignoring the suggestions is entirely yours.

In closing I want to say a word to you about our inspectors who visit your gin one or more times each year. I want to express to you our very sincere appreciation for the cordiality and cooperation which most of you accord to them. You can understand, I am sure, that they have no personal interest concerning the manner in which you operate your plant. Such suggestions as they offer are made solely in line with our policy of giving the property owner the benefit of our recommendations, based on many years experience, for improved fire safety and minimum rates. We do not represent our inspectors as cotton gin experts, but we take pardonable pride in their knowledge of fire prevention and fire protection.

It is most pleasant to have met here with you and I want to urge that you feel no hesitancy in calling upon us when we can assist you in planning changes to an existing plant, in planning the erection of a new plant, or in any other manner.

New Book

PRESENTS CROSS-SECTION VIEW OF AMERICAN INDUSTRY

Economics of American Manufacturing, by Edward L. Allen, is a new book that presents a penetrating cross-section view of American industry.

In this new book, 19 representative industries are examined within five general categories: basic metal, basic nonmetallic, metalworking, textile and allied, and consumer specialty. Included within these groups are automobiles, machine tools, aircraft, agricultural implements, leather goods, cotton textiles, synthetic fibers, food, beverages, tobacco, furniture, and other components of America's technology.

Following an introductory chapter on the place of manufacturing in the American economy, the author analyzes each industry from three standpoints: its setting in the national economy, structure of the industry, and financial factors. A concluding chapter is devoted to sources of industry data and an extensive bibliography.

Economic Mobilization and Stabilization is published by Henry Holt and Company, New York. Price, $6.

Synthetic Detergent Plant Purchased by Conoco

Continental Oil Company, Ponca City, Okla., has announced the purchase of the synthetic detergent plant of the Stepan Chemical Company, Chicago.

The plant will be operated by Conoco's petrochemical department and will continue to make industrial synthetic soaps. It is reported to be one of the largest producers of bulk synthetic detergents in the Midwest.

HIS KINGDOM COVERS FLAVOR!

Another great reason why King Cotton is winning the praises of people throughout the country! From golden cottonseed oil are made such high quality products as Hellmann's and Best Foods *Real* Mayonnaise and Nucoa margarine. The wholesome goodness and finer flavor of these food products have made them America's favorites!

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In Copenhagen, June 10-13

International Seed Crushers Confer

■ REPRESENTATIVES of U.S. on program featuring discussions of developments in fats and oils in major countries of the world.

Sixteen Americans were among the 350 persons registering at the annual conference of the International Association of Seed Crushers held June 10-13 in Copenhagen under sponsorship of the Danish Seed Crushers Association, according to USDA.

The association accepted an invitation from Dutch crushers to meet in Netherlands next year, followed by meetings in France in 1954 and Germany in 1955. All Western European countries were represented at the conference except Spain, Portugal and Ireland.

Program features included a report on the world fats and oils situation by J. C. A. Faure, London; summary of the fats and oils situation in the U.S. by T. D. Daniels, Minneapolis; and a discussion of international whaling activities by Professor Birger Bergersen, Norwegian Ambassador in Stockholm.

Among resolutions adopted was one urging the shipment of seed from producing countries rather than oilseed cake and oil, and a resolution stressing the need for improving the quality of the seed shipped in order to regain prewar standards.

Of direct interest to U.S. processors and producers was the assertion by a number of European crushers that the quality of many cargoes of American soybeans exported to Europe was below standard, particularly in respect to foreign material.

A USDA recheck of records has not disclosed any inspection irregularities, but the Department sent Paul E. Quintus, Office of Foreign Agricultural Relations, to the Copenhagen meeting to discuss complaints and possible remedial action. Arrangements were worked out to make some cargo samples drawn in the U.S. available to European graders to determine whether there are differences in interpretation of foreign materials. Samples from the same vessels will be drawn in Europe and returned to the Department to determine whether comparable samples are being used as a basis of establishing the grade.

Growing competition for American beans in Western Europe from Manchurian beans makes a solution of the problem especially important, USDA points out. Western Europe bought some 500,000 tons of Manchurian soybeans in 1951 compared with about 100,000 in 1950 and virtually none in earlier postwar years. Purchases from U.S. were about 150,000 tons in 1950 and 250,000 tons in 1951.

Crushers Give Camera to Future Farmer Chapter

Texas Cottonseed Crushers' Association presented a camera as an attendance prize to a Future Farmer Chapter during the annual convention of the Texas Association of Future Farmers in Dallas, July 16-18. The presentation was one of the many activities of the association's public relations committee, of which R. P. Tull, Dallas, is chairman.

Several thousand Future Farmers attended the three-day meeting featured by contests, parades, demonstrations and other events.

New Book

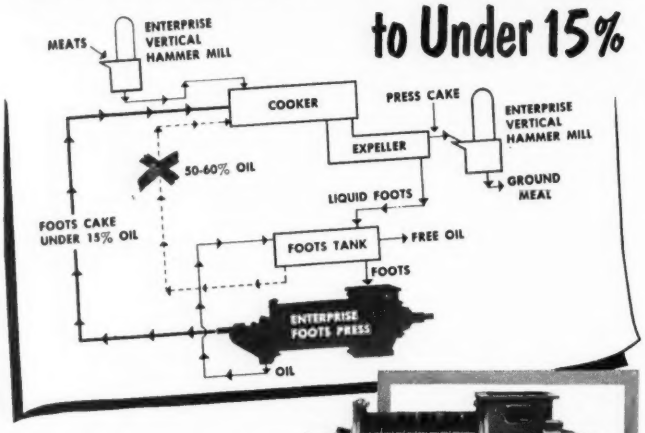
SHOWS HOW TO CONVEY IDEAS ACCURATELY, EFFICIENTLY

Technical Reporting is the name of a new book the publishers term "a completely modern essential handbook for engineers, scientists, technicians, businessmen, and government workers." Illustrated with photographs, diagrams, charts, etc., the book shows how to convey information and ideas accurately and efficiently, using the techniques perfected by modern industry and science.

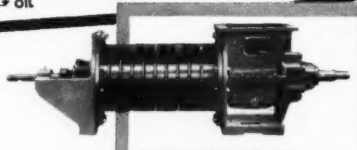
Every phase of technical reporting is discussed and illustrated in the handbook. Its author is Joseph N. Ulman, Jr., of Massachusetts Institute of Technology, a writer and engineer who has been engaged for many years in writing and editing engineering reports and articles. Ulman was with General Motors and the Ethyl Corporation and currently is assistant professor of English at M. I. T.

Technical Reporting is published by Henry Holt and Company, New York. Price, $4.75.

How the Enterprise Foots Press Cuts Oil Content of Foots Rerun to Under 15%



Designed to extract a maximum amount of surface oil from foots, the Enterprise Foots Press materially reduces the rerunning of oil through cooking and pressing operations. Lower operating and maintenance costs result from less clogging and gumming on cookers. This makes possible a more constant load on the expellers. Plant capacity is increased, adding profits for processors wherever this outstanding equipment has been installed. Write for complete information, today.



FOR GREATER PROFITS IN '52 INSTALL THIS FOOTS PRESS **NOW!**

- Boosts plant capacity
- Increases profits
- Low initial cost
- Reduces foots rerun to under 15%
- Cuts maintenance costs
- Minimum attention by press room operator
- Small space, easy to install

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Enterprise Process Machinery

Maybe he grows cotton . . .
or gins it . . . or sells it . . .
or spins it. Maybe he never
saw a bale of cotton in his life. Either
way, he's still a "cotton man," for most of his apparel is cotton-made.

He likes the cool absorbency of cotton underwear and socks, the thrifty ruggedness of cotton jeans and work clothes, the crisp freshness of cotton shirts, the smart good looks of cool cotton dress suits for summer wear. His shoes keep their shape because of cotton linings and, like his belt, hat and wallet, are stitched with cotton thread. Even at night he's a "cotton man" in comfortable cotton pajamas.

He chooses cotton for most of his clothes because it's cool, comfortable, washable, long-wearing and economical, because no other textile offers so many practical advantages.

Come to think of it, aren't you a "cotton man," too?

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COTTON AND ACCO COTTONSEED PRODUCTS

Find Moisture Limit on Storing Seed Cotton

Seed cotton with moisture content not exceeding 14 percent is safe to store for as long as several months without damage to grade, spinning qualities, milling properties of viability of seed, reports USDA. Such extended storage may, however, slightly decrease staple length in some cases.

Provision must be made to circulate cool air through stored seed cotton with a moisture content above 14 percent, the report said. Extensive tests were made to determine the percentage of moisture that makes storing seed cotton unsafe.

Walker Succeeds Moore as OFAR Assissant Director

Appointment of Dr. Rudger H. Walker as assistant director, Office of Foreign Agricultural Relations, has been announced by USDA. He succeeds Dr. Ross E. Moore, who has become director of Point Four activities in Mexico. Dr. Glenn L. Taggart, who has been assistant chief, will become chief of the OFAR technical collaboration branch, succeeding Dr. Walker.

Production of Margarine Increases 24 Percent

Margarine production during the first five months of 1952 was 24.2 percent larger than in the corresponding period of 1951, U.S. Department of Commerce reports show. January-May production of 540,803,000 pounds compared with 435,180,000 pounds a year ago.

Production of colored margarine for the period was 470,118,000 pounds, against 320,722,000 pounds for the five months of 1951; and uncolored margarine produced totaled 70,685,000 pounds compared with 114,458,000 pounds a year ago.

82 Entries in Missouri Cotton Club Contest

Eighty-two Future Farmers and 4-H Club members, including two girls, are competing in the Missouri Cotton Producers Association Two-Bale Cotton Club contest, which seeks to increase efficiency in cotton production.

First, second and third place state winners will receive awards of Defense Bonds in February. All entrants who produce more than 750 pounds of lint cotton per acre will be given silver lapel pins.

Mississippi Mill Is Pleased With Exsolex Installation

In May of this year the Riverside Oil Mill at Marks, Miss., placed in operation a new-series Exsolex plant furnished by the V. D. Anderson Company of Cleveland, Ohio. The plant was rated at 80 tons of soybeans within two weeks of the time it went into operation. Production has now gone up to 100 tons. The management reports that early runs in the plant have been very satisfactory.

The mill is currently running on soybeans but plans to crush cottonseed later this year. The Exsolex plant has a capacity of 180 tons of cottonseed but currently is rated at 120 tons due to limitations in lint equipment.

William King Self, manager of the plant, planned the new installation. His father, P. M. B. Self, in 1941 built the first all-new cottonseed oil mill to be erected in Mississippi in a generation. The Anderson Expellers installed at that time have been converted to Pre-Expellers in the present Exsolex mill.

Valley Processors Set 1953 Meeting Dates

C. E. Garner of Memphis, secretary of the Valley Oilseed Processors Association, advises the 1953 annual meeting of the organization will be held April 13-14 at Hotel Buena Vista, Biloxi, Miss.

Texas A. & M. Gets Grant For Glyceride Research

National Science Foundation has announced the grant of $16,000 to Dr. Raymond Reiser, department of biochemistry and nutrition, Texas A. & M. Research Foundation, College Stotion.

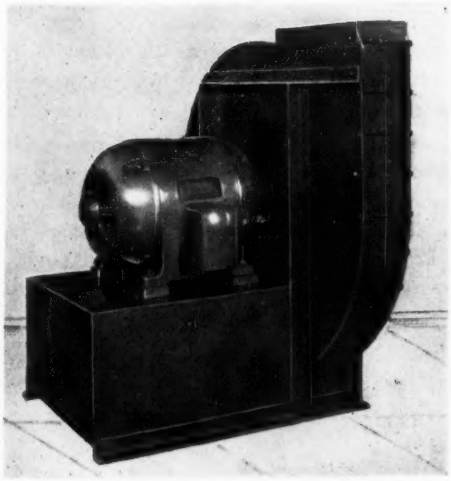
The grant will finance a three-year research project on tracer studies on glyceride absorption and transport.

THE RUBBER BLADE COOLING FAN

This fan has many advantages over the old slow speed fans, especially in the newer storage houses and tanks where the material to be cooled has a considerable depth.

In some cases it requires a vacuum much higher than the slow speed fan is capable of developing before the air begins to move, thus all the power consumed is a total loss.

With the Phelps rubber blade fan, capable of developing a vacuum of 36 inches or more, the resistance to drawing the air through the material is only a small percent of its capacity, leaving the balance free to pull the cooling air through the material. True, the Phelps Fan requires more power than the slow speed fan, but it does the work so much quicker that there is a sizeable saving, even in the smaller houses.



HUBERT PHELPS MACHINERY CO.

1700 East 9th St. Little Rock, Arkansas

Founded in 1802

Du Pont Celebrated Its 150th Anniversary on July 18

■ CEREMONIES held on banks of Brandywine Creek at Wilmington, Del., attended by 7,000 active and retired employees and members of the Du Pont family.

NEARLY 7,000 PEOPLE took part in ceremonies July 18 marking the 150th anniversary of the founding of E. I. du Pont de Nemours and Company. The observance took place at the site of the company's first mill on Brandywine Creek at Wilmington, Del.

• **25 States Represented**—Those who attended were mostly active and retired Du Pont employees and members of the Du Pont family. The employees were selected to represent each of Du Pont's 71 plants and many of its laboratories and sales offices. They came from 25 states, some as distant as the West Coast. In addition to the ceremonies at Wilmington, thousands of men and women at the company's plants, laboratories, and sales offices across the nation held their own celebrations and heard the program, which was broadcast over the NBC radio network from 3 to 4 p.m.

The program at Wilmington included an histroical dramatic prologue depicting the company's founding. Speakers following the prologue included Henry B. du Pont, great-great-grandson of the founder, and a vice-president and member of the Du Pont executive committee; the company's president, Crawford H. Greenewalt; and Walter S. Carpenter, Jr., chairman of the board of directors.

A marker, formed by one of two huge millstones ordered from France by the founder of the company, was dedicated at the Wilmington ceremonies. The stone weighs about seven tons and is mounted on a granite base. Its function was to grind, by water power, the ingredients of black powder—sulfur, charcoal, and saltpeter. Bronze plaques designed and executed by Domenico Mortellito, Wilmington sculptor, are mounted upon the stone.

The celebration commemorated the dynamic growth from a single small mill filling the vital need of a young nation for blasting powder and gunpowder, into an organization employing 87,000 men and women, owned by more than 140,000 stockholders, selling thousands of chemical products to more than 75,000 customers, and buying from more than 30,000 suppliers.

• **Book Describes Growth**—Du Pont has also marked its 150th anniversary year with the publication of a book, "Du Pont—The Autobiography of an American Enterprise." The theme of the book is the parallel development of the Du Pont Company and the nation over a century and a half. Largely pictorial, with many illustrations in color, the book relates the company's activities and operations to broad economic and social developments in the U.S.

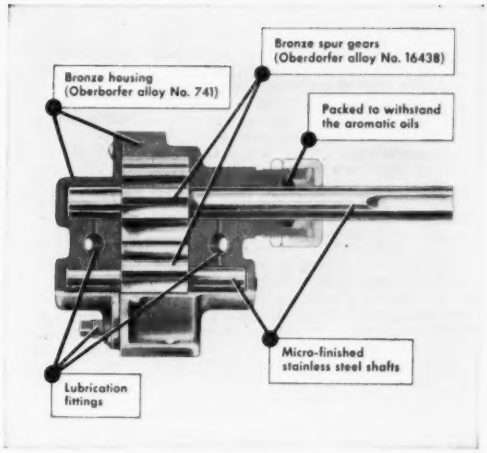
The company was founded by Eleuthere Irenee du Pont de Nemours, who arrived on the banks of the Brandywine on July 19, 1802, to build a mill for production of black powder, urgently needed by the young nation for hunting, land clearance, mining, quarrying, and self-protection.

• **Early Research Effort**—All Du Pont research originally was carried out in plant laboratories or in the homes of members of the Du Pont family. Then, in 1902, the company built the Eastern Laboratory at Gibbstown, N. J., its first formal research venture. This was one of the first industrial research laboratories in the U.S. and is believed to represent the earliest organized research effort in the American chemical industry.

• **Greatest Growth Since 1927**—In 1927 Du Pont launched its program of fundamental research—that is, research to uncover basic facts, without regard for specific commercial objectives. It is since that date that the company has experienced its greatest growth. Among the many outstanding results of this program are neoprene, the first successful general purpose synthetic rubber, announced in 1931, and nylon, announced in 1938.

The compay swiftly became a factor in such other phases of the chemical industry as plastics, electrochemicals, heavy chemicals, photographic film, agricultural chemicals, organic chemicals, and pigments.

Since the end of World War II, Du Pont has spent more



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Agricultural Pump Division
Oberdorfer Foundries, Inc.
1527 Thompson Rd. Syracuse, N. Y.

OBERDORFER

BRONZE SPRAYING PUMPS

than $650 million to build new plants and improve existing ones. It has spent about $40 million to provide up-to-date and enlarged research facilities. Last year, research expenditures, aside from construction costs for new facilities, were $47 million.

A technically skilled organization, Du Pont carried out many important war jobs for the government in World War II and is now building the gigantic Savannah River Works for the Atomic Energy Commission for a fee of one dollar.

• **Seventy-One Plants . . . 87,000 Employees**—From half a dozen owners and a few score employees has grown a company with 140,000 stockholders and 87,000 employees; from a single mill by the Brandywine has grown a company with 71 plants in 25 states; from E. I. du Pont's informal experiments have sprung some 38 research and development laboratories; from a single product —black powder—has grown a family of some 1,200 products and product lines.

Drouth and Insects Hurt

1,150,000 Bales Is Mexican Estimate

■ HEAVY rains come too late to prevent reduction in plantings in Matamoros region, prospects are better for other sections.

A 1952-53 cotton production in Mexico of about 1,150,000 bales is indicated by the present outlook, according to USDA reports. This would compare with the 1951-52 production of 1,368,000 bales.

Harvested cotton acreage is expected to be only 1,922,000 acres compared with 2,377,000 acres in 1951-52. Greatest reduction in acreage has been in the Matamoros region, which is expected to harvest only 566,000 acres during the 1952-53 season, against 791,000 harvested during the current season.

Heavy rains in May which broke the drouth in this area which had lasted for nearly a year arrived too late to prevent a reduction in the acreage planted to cotton for the coming season. The rain, however, is expected to result in higher yields per acre, USDA points out.

The insect infestation, particularly of the pink bollworm, boll weevil, and, cotton bollworm in the Matamoros region (as well as other cotton-producing areas of Mexico) has been serious this spring. This is partly attributable to the postponement last fall of the final date for destruction of cotton stalks due to the lateness of the crop and relatively high prices prevailing for cotton. Control measures have been systematically carried out, but no effort has been made to completely eradicate the insects this year due to the heavy expense involved in such an undertaking. The goal set has been to hold infestation damages to a minimum with a comparatively small expenditure.

Shortage of credit has had a serious effect on cotton planting in Mexico for the 1952-53 season. Lending agencies have shown a great deal more caution this spring following some unprofitable experiences with the 1951-52 crop. This was especially true with late cotton, yields of which were very low in 1951-52. Little credit has been granted to growers whose cotton was not up by May 1, 1952. Assuming favorable weather conditions and the continuation of an effective insect control program, production of cotton in the Matamoros region is expected to amount to between 230,000 and 280,000 bales, considerably below the 345,000-bale production in this area in 1951-52.

The prospects in the Mexicali area are brighter. With ample supplies of water for irrigation, only a small acreage decrease from 417,000 in 1951-52 to about 400,000 in 1952-53 has taken place. Much of the reduction was in near marginal land. An increased demand for insecticides and fertilizers is expected to boost the yield to about 275,000 bales, five percent above the crop of 261,000 bales produced in 1951-52.

Other sizable reductions in acreage have occurred in the Laguna region from 329,000 acres in 1951-52 to 220,000 acres in 1952-53, in the Delicias area from 178,000 to 130,000 acres, and in the Don Martin region from 59,000 to 20,000 acres. The sole increase in acreage in 1952-53 over 1951-52 occurred in the Juarez area where 57,000 acres have been planted to cotton compared with 54,000 in 1951-52.

Southwest Business, Farm Conditions Favorable

Generally favorable agricultural and business conditions were reported in the July 1 monthly business review issued by the Federal Reserve Bank of Dallas. The report covers conditions in the eleventh district, including Texas and portions of Louisiana, Oklahoma, New Mexico and Arizona.

Agricultural conditions in the district generally are very good, although some areas still need moisture and moisture reserves in other areas are becoming depleted.

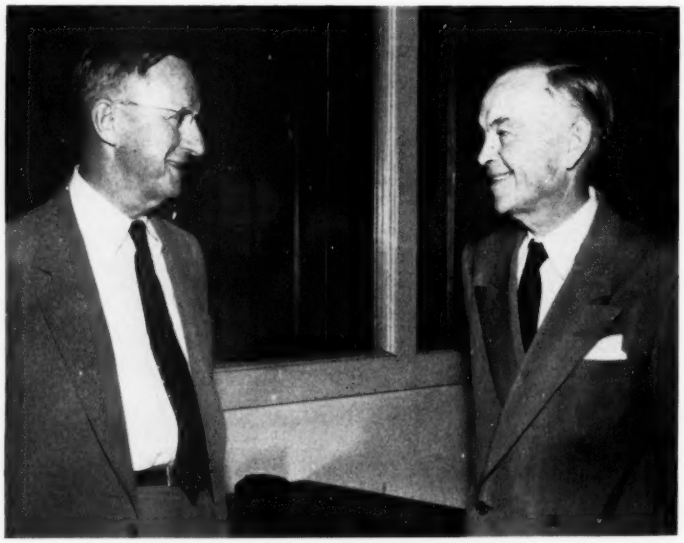
May department store sales were 14 percent above April and 14 percent above May, 1951; average sales per business day were the highest for any May on record. End-of-May department store inventories were 12 percent below a year earlier, and orders outstanding were 20 percent above the low level of a year ago.

The bank reports that the recent oil strike caused a loss of an estimated fifty million barrels production of refined petroleum products. At the end of May, national stocks of refined products were down 12 to 15 percent from a year earlier. Crude oil stocks accumulated during the strike to reach the highest level in over 10 years. Drilling activity continues at a record level.

Castor, Tung Oil Export Allocations Announced

USDA has announced export allocations of 100,000 pounds of commercial and sulphonated castor oil and 90,000 pounds of tung oil for the third quarter of 1952. These are the same quantities as were allocated for the second quarter of this year.

Export licenses will continue to be required for medicinal castor oil, although no limit has been placed on the total quantity which may be licensed in the third quarter.



Completes 50 Years of "Temporary Work"

TEMPORARY WORK as a stenographer during the bagging and tie season of 1902 proved to be the beginning of 50 years with the American Cotton Manufacturing Company for R. S. (Dick) Norris, left, Southwestern sales manager of the firm at Houston. Norris is telling J. S. LeClercq, Jr., who represents the company in Dallas, about the gold watch presented to him by the firm on April 1, 1952, upon the completion of 50 years of service. Norris recalls many of the pioneer leaders in the crushing industry whom he met as a 16-year-old boy when he first joined the firm.

Purpose: To Control Insects

68 Vo-Ag Teachers Take Short Course

■ TEXAS TECH sponsored course July 8-9. Addition of teachers to insect control forces greatly strengthens the West Texas program.

West Texas' South and Rolling Plains this year will benefit from the participation of 68 area vocational agriculture teachers in the area's insect control program. That number of teachers and 22 others were enrolled at the insect control short course held at Texas Technological College at Lubbock on July 8-9. A similar short course was held at Texas A. & M. for vo-ag teachers on June 16-17-18.

Prof. Cecil Ayers of Texas Tech's agronomy department was in charge of the Lubbock short course. Neal Randolph, Extension entomologist stationed at the Lubbock school, was the principal teacher of the course. Assisting Randoph were USDA-BEPQ men and others.

Sponsors of the course were the Tech agronomy and agricultural education departments, with the Extension Service and Texas Cottonseed Crushers' Association cooperating. The Texas Association gave a dinner for the enrollees and others in attendance on the night of July 8. Speakers at the dinner were C. B. Spencer, agricultural director of the Texas Association, and Don Jones, superintendent of the Texas Agricultural Experimental Substation at Lubbock.

Jones emphasized the desirability of cutting off irrigation water at the proper time to prevent buildup of bollworms and other pests that are attracted to succulent cotton. Spencer said the responsibility for controlling cotton pests rests squarely with the farmer. And, he said, many progressive growers are making a success of insect control because they follow the state guide and the advice of Extension workers and others who understand the control program. Other farmers, Spencer pointed out, want information relative to identification of insects, recognition of insect damage, and knowledge of when and how to apply poisons.

Oil mill people who attended the short course included Pete Peterman and Roy Mack of Western Cottonoil Company, Lubbock; Roy Davis of Plains Cooperative Oil Mill, Lubbock; Geo. A. Simmons and Dixon White of Lubbock Cotton Oil Mill, Lubbock; and Jim Moody and D. Hull of Lamesa Cotton Oil Mill, Lamesa.

Lion Oil Plans Fertilizer Plant at Luling, La.

A new plant to manufacture anhydrous ammonia and prilled ammonium nitrate, and to cost an estimated $31 million, will be constructed by Lion Oil Company, of El Dorado, Ark., on a 1,400-acre tract at Luling, La., about 14 miles north of New Orleans. The plant will have a daily capacity of 300 tons of anhydrous ammonia. Nitric acid will be produced in an intermediate step.

Production of Fats, Oils Rises, Consumption Down

Production of primary edible fats and oils was at a record level during the first half of the October, 1951, to September, 1952, marketing year, but is expected to drop somewhat below the levels of a year ago this summer, according to a USDA-BAE release.

Reduced production of soybean oil and lard probably will account for most of the decline, the Bureau adds. Total stocks of soybeans on April 1 were 9 percent smaller than a year earlier, and hog slaughter probably will be smaller than in the summer of 1951. A slight decline in butter output also is likely.

Disappearance of fats and oils used in foods was less during the first half of this marketing year than in the same period last season, but second half disappearance is expected to increase over the level of a year ago.

Stocks of primary food fats, except butter, are large. The Bureau says that unless exports are much greater than expected, carryover at the end of the 1951-52 marketing year will be considerably larger than at the same date in 1951.

• Cost of developing and equipping a new irrigation well on the Texas South Plains ranged from $4,000 to $5,000, according to a 1947-49 survey by the Experiment Station. Major expense item was about $2,000 for the pump.

IT PAYS TO DEFOLIATE WITH SHED-A-LEAF APPLIED AS A SPRAY

Shed-A-Leaf offers you these important benefits through effective cotton defoliation:

1. Earlier cotton maturity.
2. Reduced boll rot.
3. Reduced insect infestation.
4. Easier hand or machine picking.
5. Reduced trash and leaf stain.
6. Earlier cover crop planting.

Wide commercial use by many leading growers show that Shed-A-Leaf will defoliate cotton plants from top to bottom—also that it is very economical to use. Shed-A-Leaf comes in powder form, readily dissolved in water and applied by airplane or ground sprayers. Good defoliation can be obtained with Shed-A-Leaf, even when there is no dew on the plants. Time of application is generally 2 to 3 weeks before picking.

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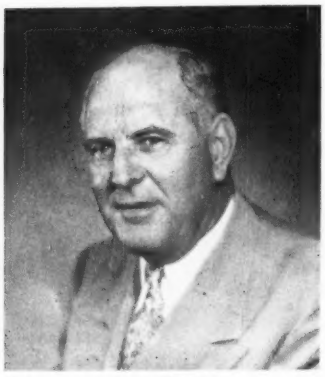
CIRCULAR ON HOW TO DEFOLIATE WITH SHED-A-LEAF

For All Oil Mills

Czichos to be Swift Southern Manager

■ **PRINDEVILLE announces new combination of districts, with Hulsey remaining in Dallas as assistant to manager.**

E. F. Czichos, who has been district manager of the Swift & Company Southwestern oil mills, has been appointed division manager of all Swift Oil Mills in the South, according to C. T. Prindeville, vice president, Chicago. Czichos



E. F. CZICHOS

will have his headquarters in Memphis, Tenn.

Czichos will assume additional responsibilities as a result of combining two oil mill districts, the Southwestern district with headquarters in Dallas, and the Southeastern with headquarters in Memphis. These two districts have been combined under one supervisor who is to be known as Southern Division Manager of the Oil Mill department.

P. A. Laws, who retired recently, formerly was manager of the Southeastern district.

B. B. HULSEY

"Our purpose in combining the two districts into one division is to make possible a closer coordination of seed buying, and product sales throughout the entire South," Mr. Prindeville said. "Memphis was selected as the most practical location for headquarters because it is the commercial center of the cotton oil mill business."

Swift is building a combination solvent extraction mill in Memphis that will process both soybeans and cottonseed.

Czichos has been connected with the oil mill business for 37 years. He started in Waco, Texas, as a stenographer in 1915, and during the next 12 years also served in Houston and Memphis. In 1927 he was appointed manager of the mill at Little Rock, Ark., and served there for 15 years. He was appointed division manager, with headquarters in Dallas, in November, 1942.

Czichos has been a member of the industrial development committee of the State Fair of Texas, and a member of the Dallas Agricultural Club and Dallas Athletic Club. He is a native of Cameron, Texas. He is married and has a son, E. F., Jr., who is serving with the armed forces as a member of the procurement division, U.S. Army General Supply Depot, stationed in New York.

B. B. Hulsey, who has a legion of friends in Texas and is well known throughout the cottonseed crushing industry, will remain in Dallas as Assistant to the Sotuhern Division Manager. Hulsey is a past president of the Texas Cottonseed Crushers' Association and has been active in many industry and civic programs.

Southland Names Dickson Manager at Corsicana

Appointment of Frank P. Dickson as manager of the Southland Cotton Oil Company, Corsicana, Texas, has been announced by Jas. R. Gill, Paris, president of the company. He succeeds C. C. Roberts who retired voluntarily on June 30.

Dickson has spent his entire business life with the Southland organization, starting in 1936 as weigher at the Temple mill. He was promoted to cashier and, in 1949, transferred to Corsicana as seed buyer and assistant to Roberts. Civic minded and active in many programs to aid agriculture, he is a member of the Lions Club, Chamber of Commerce, Country Club and his church.

Irrigation Helps Cotton Burned by Fertilizer

A number of cases of fertilizer burning in cotton fields during June are reported from Kern County, Calif., by Farm Adviser John V. Ferry. The farm adviser adds that many different factors appear to be involved in the burning, including the rate of nitrogen used and the soil moisture content at the time of fertilizer application.

As a general rule, irrigating as soon as possible following the application of fertilizer is recommended. In most cases, where burning has occurred and the grower has irrigated to help the situation, the cotton has gone on to make a good crop.

Commercial Solvents Plans Ammonium Nitrate Plant

A new process, called the Stengel process, for the production of solid ammonium nitrate fertilizer will be utilized by Commercial Solvents Corporation, it has been announced by J. Albert Woods, president, Commercial Solvents Corporation, New York, N. Y.

A plant is being erected near Sterlington, La., where the basic materials, anhydrous ammonia and nitric acid, are already being made by the company. An area of 2200 acres has been purchased about 2½ miles from the present ammonia production unit. The new ammonium nitrate plant will be located in the center of this property. Completion of the plant is expected by July 1, 1953.

Production of ammonium nitrate fertilizer by Commercial Solvents will be in addition to anhydrous ammonia and nitrogen solutions which are already being marketed by the Agricultural Chemicals Division of the company.

Commercial Solvents Corporation officials say that advantages of the Stengel process over conventional processes now being used are as follows: (1) lower capital investment; (2) reduced operating expenses; (3) shorter time required to build the plant due to simplification of construction and process; (4) with the Stengel process particle size can be changed and "custom-sized" to meet customers' needs.

Field tests which have been conducted indicate that the product flows well in drills and spreading units, the company says.

Migrating Machines To Harvest Crop

Mechanical cotton harvesters will soon harvest much of the crop by migrating across the Cotton Belt, just as combines move through wheat areas, under plans made recently at a Memphis meeting of state employment service directors and U.S. Employment Service representatives.

A service, similar to that for custom harvesting of wheat, was set up to aid the flow of mechanical pickers to needed areas. Discussions indicated that peak movement of cotton through Sept. 1 is in Texas, and that pickers from all areas could be used there. Georgia and Alabama would need the machines by Sept. 15, after which they would move westward to reach California and Arizona around Nov. 1.

An estimated 535 machines will be available for interstate movement this season, according to preliminary surveys, but the number is expected to increase greatly after the service starts operating. Total number of spindle-type pickers to be available for cotton in 1952 was estimated at 8,457.

The unorganized 1951 movement of many machines from Mid-South and Southwestern areas to the Far West caused the group to seek plans for organized methods for using machines efficiently to harvest more of the crop.

In Greenville, Miss., Aug. 5-6

300 Ginners Will Attend Meeting

■ MISSISSIPPI short course to furnish practical information on current ginning problems, aiding more efficient operations.

More than 300 gin owners and operators are expected to attend the Delta Ginners Short Course, Aug. 5-6, in Greenville, Miss., according to Luther W. Wade, chairman of the Delta Council ginning improvement committee.

The objective of this short course program, sponsored by Delta Council and the Mississippi Extension Service, is to maintain and improve the quality of Delta cotton through better gin operation. Similar short course programs were held in the Delta in 1950 and in 1951 and were marked by a high degree of interest and participation from area ginners and by all out cooperation from gin machinery manufacturers.

The porgram this year will be held in the air-conditioned courtroom of the Washington County Courthouse, Greenville, and will feature top technicians and gin specialists. One of the high lights of the opening session will be a discussion of "Effects of Trends in Cotton Harvesting and Ginning on Mill Performance," by Graves Jones, Jones, Gardner and Beal, Providence, R. I.

E. H. Brooks, vice-president, Continental Gin Company, Birmingham, Ala., will represent the Gin Machinery Manufacturers Association on Aug. 1 and will discuss "The Gin Machinery Manufacturer's Contribution to the Ginning Education Program." Other subjects for discussion will include Necessity for Better Ginning, Importance of the Gin Operator in the Modern Gin, Effects of Cultural and Harvesting Practices on Ginning, and Ginning Machine-Picked Cotton for Higher Value.

Charles M. Merkel, senior engineer, in charge, Stoneville Ginning Laboratory, will lead a panel discussion on "Sources of Heat for Drying Systems," with manufacturer representatives serving as panel members.

J. C. Oglesbee, Jr., USDA Cotton Ginning Specialist, Atlanta, Ga., will serve as moderator for a panel on "Modernization of Existing Plants to Meet Harvesting Requirements," at the afternoon session. Those taking part on the panel will include F. L. Gerdes, in charge, Stoneville Cotton Laboratory; Charles M. Merkel, senior engineer, in charge, Stoneville Ginning Laboartory; and Charles A. Bennett, principal engineer, in charge ginning investigations.

The program on Aug. 6 will be devoted to group discussions, with those in attendance being divided into classes according to the make of machinery in which they have a particular interest. Gin machinery manufacturer representatives will head these discussion groups where emphasis will be placed on adjustments and operation of equipment to obtain maximum quality and efficiency.

"The successful operation of a modern cotton gin requires a skilled operator," Wade said. "Increased competition from synthetics makes it more important than ever before that ginners perform a superior job of ginning and at the same time that they do the job as economically and efficiently as possible. The Ginning Short course program, sponsored by Delta Council and the Mississippi Extension Service, is designed to furnish practical information to area ginners so that they can do a better job, both for the farmer and the cotton industry."

Wade will preside at the morning session on Aug. 1, and Tom Johnston, Mississippi Extension Ginning and Mechanization Specialist, will preside at the afternoon session.

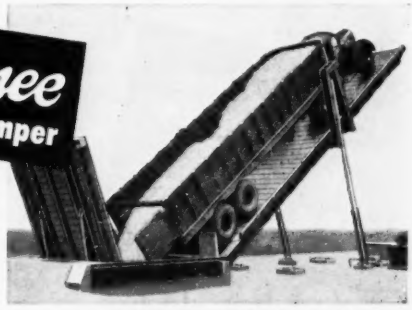
• The average U.S. farm is now worth nearly $18,000, says USDA.

Hercules Appoints Two New Entomologists on Staff

Two entomologists, Mancefield Barrow, Paragould, Ark., and Thomas M. Ritchie, Newton, Miss., have joined the agricultural chemicals group of Hercules Powder Company's naval stores department.

Barrow received his B.S. degree in agronomy from Arkansas State College and his M.S. in entomology from the University of Wisconsin. Ritchie received his B.A. degree in biology from the University of Mississippi and M.S. in entomology from Mississippi State College.

Kewanee Cottonseed Dumper



- Sizes—40', 45' and 50' Platforms. Other sizes special.
- Capacities to 80,000 lbs.
- Hydraulic 10'x10' Pit Door.
- TWIN Hydraulic Power Units.
- Pit and Pitless Models. Pitless reduces foundation costs.

This New KEWANEE Pitless Model cuts foundation costs to a minimum.

UNLOADS all sizes of Trucks and big Tractor Trailers in a "jiffy." Takes all the time-stealing hard work out of unloading...eliminates waiting time and keeps trucks "on the go."

Powerful TWIN Hydraulic Unit. Raises to 43° angle in less than a minute, lowers in 25 seconds. Maximum safety because of "oil-locked" hydraulic control. No danger of accidents.

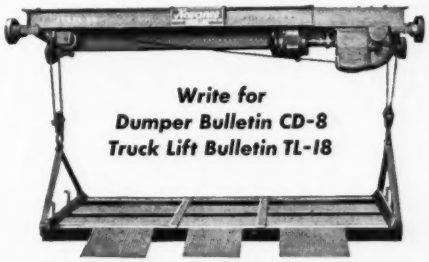
Pit Door opens and closes hydraulically in seconds, permits cottonseed to be dumped directly into open pit.

Easy, simple controls . . . one man operates the Dumper, Wheel Stops and Pit Door from one location. Eliminates back-breaking labor and cuts costs.

Evidence of KEWANEE performance and economy is overwhelming. It is substantiated by successive repeat orders from outstanding firms who have installed them in all their plants.

Every Trucker and Ginner is a real booster. They appreciate "no long waiting in line" in busy hauling seasons and they tell others. It attracts new customers, widens your territory and expands your volume.

WRITE FOR BULLETIN — find out how KEWANEE will cut your unloading costs.



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ENGINEERED for easy operation and dependable performance, backed by 31 years' know-how in the grain trade.

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Telescoping frame adjustable every 2" for driveways 11'0" to 15'6". New heavy duty Cradle of greater strength and utility. Strong lifting cables.

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Valley Association Names Committee on Processing

Formation of a committee on cottonseed processing research has been announced by C. E. Garner, secretary of the Valley Oilseed Processors' Association, Memphis. The committee had its origin, Garner stated, at the clinic held in April at the Southern Regional Research Laboratory at New Orleans. Because of broad interest in the subject, membership is not limited to Valley Association members but extends to interested members of the industry in other states.

The committee membership consists of Chairman Ralph Woodruff, Osceola Products Co., Osceola, Ark.; Vice-Chairman J. B. Perry, Jr., Mississippi Cottonseed Products Co., Grenada, Miss.; T. C. Lee, Perkins Oil Co., Memphis; E. A. Gastrock, Southern Regional Research Laboratory, New Orleans; W. K. Martak, Southern Cotton Oil Co., Memphis; James Hicky, Forrest City Cotton Oil Mill, Forrest City, Ark.; J. R. Mays, Jr., Barrow-Agee Laboratories, Memphis; H. L. Craig, Buckeye Cotton Oil Co., Cincinnati; M. C. Verdery, Anderson, Clayton & Co., Houston; E. C. McGee, Swift & Company, Memphis; H. D. Reeves, Sweetwater Cotton Oil Co., Sweetwater, Texas; T. P. Wallace, Carver Cotton Gin Co., Memphis; J. H. Brawner, Western Cottonoil Co., Abilene, Texas; Allen Smith, Perkins Oil Co., Memphis; Lucian Cole, Industrial Machinery Co., Ft. Worth; L. N. Rogers, Buckeye Cotton Oil Co., Memphis; and Dick Taylor, Southland Cotton Oil Co., Waxahachie, Texas. Garner will serve as committee secretary.

A sub-committee headed by M. C. Verdery will study problems involved in the cleaning of cottonseed. F. L. Gerdes, Cotton Branch, PMA, Stoneville, Miss., will assist this group in an advisory capacity. A second sub-committee, under the chairmanship of H. L. Craig, will deal with the improvement of the quality of linters. Other sub-committees will be appointed to deal with other specific problems and the committee will be glad to receive suggestions from members of the industry as to matters that deserve special attention, Garner said.

EVERY YEAR MORE AND MORE GROWERS ARE PLANTING
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MONEY CAN BUY
High yield of 15/16 to 1-inch staple, high acre-yield, high gin-turnout—three of many reasons why WATSON'S COTTON is the fast-selling seed in the Southwest. State-registered and Ceresan-treated. Are YOU stocking this best-seller?
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Cotton Report as of July 1

The U.S. Crop Reporting Board estimates 26,051,000 acres of cotton in cultivation on July 1. This is nearly 7 percent less than the 27,917,000 acres in cultivation on July 1, 1951, but is 21 percent more than the 10-year average of 21,533,000 acres. It is nearly 2 million acres—7 percent—less than the 1952 goal of 28 million acres.

In states east of the Mississippi River, the acreage in cultivation on July 1 this year is about the same as a year ago. The states west of the Mississippi River, except California and Arizona, show rather sharp decreases in cotton acreage ranging from 6 percent in Louisiana to 21 percent in Oklahoma. The Texas acreage in cultivation July 1 is 9 percent below a year ago. In South Texas, acreage was reduced from a year ago as drought materially limited planting and resulted in some loss of acreage before July 1. In northwestern Texas, lack of moisture also limited the acreage planted and hot, dry weather and blowing sand caused heavy abandonment before July 1. A sharp reduction is estimated in Oklahoma because of a substantial shift to other crops. However, in California and Arizona a further expansion to new record highs is indicated as the acreage increased 6 and 22 percent, respectively.

In the central and eastern Cotton Belt, temperatures during April and May were generally below average and early plant growth was retarded, especially in the central Belt. Considerable replanting was necessary in some central and eastern areas as a result of wet, cool weather. Throughout the Belt, stands are generally fair to good and fields are exceptionally clean. High temperatures during June were favorable for cultivation of the crop and control of boll weevils. However, in some central and eastern areas, and in Texas and Oklahoma where soil moisture was deficient, the unusually high temperatures retarded growth.

Irrigation and ground water supplies in Arizona and California are more favorable than in any recent year and the crop is making good progress. In some areas boll weevils and bollworms have appeared in larger numbers than last year. With favorable weather for control, the infestations so far have been held in satisfactory check.

The acreage of American-Egyptian cotton in cultivation July 1, 1952, is estimated at 102,200, compared with 64,400 acres in 1951 and the 10-year average of 61,300 acres. Increases are indicated in each of the four states where American-Egyptian cotton is grown.

State	10-year average abandonment from natural causes 1942-51 Percent	Acreage in cultivation July 1 (in thousands)			
		Average 1941-50	1951	1952	1952 percent of 1951
Missouri	3.4	436	570	500	88
Virginia	3.3	29	19	22	116
North Carolina	1.4	739	698	700	100
South Carolina	0.5	1,084	1,075	1,075	100
Georgia	0.7	1,425	1,424	1,395	98
Florida	2.5	38	63	53	84
Tennessee	1.4	716	805	820	102
Alabama	0.6	1,585	1,469	1,480	101
Mississippi	2.2	2,430	2,463	2,380	97
Arkansas	2.6	1,990	2,189	1,880	86
Louisiana	1.7	882	949	890	94
Oklahoma	5.4	1,347	1,561	1,230	79
Texas	2.7	7,936	12,407	11,235	91
New Mexico	2.3	159	328	300	91
Arizona	0.5	235	548	670	122
California	0.6	485	1,331	1,406	106
Other States [1]	4.2	18	18	15	83
United States	2.2	21,533	27,917	26,051	93.5
Amer.-Egypt. [2]	1.5	61.3	64.4	102.2	159
Texas	4.0	12.8	25.0	35.0	140
New Mexico	4.0	8.9	15.0	20.0	133
Arizona	0.2	39.2	24.0	46.0	192
All other	—	—	.4	1.2	343

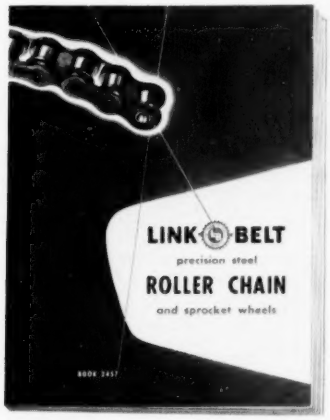
[1] Illinois, Kansas, Kentucky, and Nevada.
[2] Included in State and United States totals.

New Book:

ON LINK-BELT ROLLER CHAIN AND ITS APPLICATION

A new 148-page roller chain engineering data book No. 2457 has just been published by Link-Belt Company and is now available for distribution.

It is one of the most comprehensive



books ever developed on roller chain and its application. Detailed engineering information covers the selection, installation, lubrication, and maintenance of roller chain for drives and conveyors, and sprocket wheels.

For reference and easy identification, the book contains a large number of photographs and line drawings of the many types and sizes of chain and sprocket wheels available in the Link-Belt precision steel roller chain line. In addition, over 50 typical conveyor chain attachments are shown.

The user, applying his information to the data in the book, can determine the proper roller chain for any application. The design notes and selection data serve as a practical textbook on the use of roller chain for both power transmission and conveying service. Formulas, charts, diagrams and typical problems simplify selection.

To facilitate selection of drives for normal requirements, one section of 24 pages contains a comprehensive group of pre-selected drives which are available for delivery from stock.

Where resistance to corrosion is required, the book offers a guide to the application of stainless steel and bronze chains. Included is a table which lists the degree of resistance of these metals to 400 corrosive re-agents.

Sections on installation, maintenance and lubrication discuss such factors as shaft and sprocket wheel alignment, chain installation and chain tension, casing assembly and methods of lubrication for varying conditions.

A copy of Book No. 2457 will be sent without charge, on request, to interested persons.

Texas District Ginner Meetings Continue

Good crowds and programs have featured the district meetings that have already been held during July by the Texas Cotton Ginners' Association, Jay C. Stilley, executive vice-president, Dallas, reports. The meetings are continuing with the following schedules for the future: Fort Worth, 10 a.m., Monday, July 21, Texas Hotel; Abilene, 10 a.m., Wednesday, July 23, Windsor Hotel; Temple, 6:30 p.m., Thursday, Aug. 7, Southland Cotton Oil Company; Hillsboro, 6:30 p.m., Monday, Aug. 11, Hillsboro Country Club; Quanah, 10 a.m., Wednesday, Aug. 13, Lake Pauline Club: Wichita Falls, 10 a.m., Thursday, Aug. 14, Holt Hotel; El Paso, 10 a.m., Monday, Aug. 18, Hilton Hotel; and Lubbock, 10 a.m., Saturday, Aug. 30, Lubbock Hotel.

Cameron Leads in Texas County Farm Income

Cameron County in the Lower Rio Grande Valley was the leading Texas county in 1951 gross farm income, with Lubbock County on the South Plains ranking second, according to a report prepared by the West Texas Chamber of Commerce. The 132 counties in the chamber's territory accounted for more than 50 percent of the state's total gross farm income, and 20 counties on the High Plains had over one-third of West Texas' total income.

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3. **DELFOS 9169**
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Georgia

RIVERSIDE MILLS
AUGUSTA, GA.

At Memphis on July 15

Plan Expanded Pink Bollworm Measures

■ BELTWIDE committee emphasizes need for more effective control; approves USDA research projects and adopts special conference report.

The need for more effective pink bollworm control measures was emphasized at a meeting of the National Cotton Council's Beltwide Bollworm Committee in Memphis on July 15. The Committee adopted a report and recommendations for an expanded research program developed at a special conference in Memphis on June 26-27.

• **More Effective Control Needed** — "Unless more effective control measures for the pink bollworm can be developed quickly," the report said, "continued spread eastward seems imminent. It is evident that more effective control measures are needed when weather conditions make regulated planting dates and early stalk destruction impractical if not impossible even in South Texas. Such a program," the report went on, "will become increasingly more difficult to operate because of a shorter growing season as the infestation develops northward and eastward from the Brownsville-Matamoros area. This situation obviously indicates the need for an expanded research program."

• **Broad Research Program Approved** —The committee reviewed and approved 30 current and prospective pink bollworm research projects to be carried out by USDA and cooperating agencies. Included in the list are hibernation cage investigations; ecological investigations; biological investigations; climatic cabinet studies; dispersion investigations; alternate host plants of the pink bollworm; the relation of the pest to other cotton insects, especially the boll weevil, bollworm, aphid, thrips, and leafworm; physiological research; morphological and histological investigations; insecticidal research; chemical defoliation; herbicide investigations; natural enemies of the pink bollworm; studies of the pest in other parts of the world; improvements in gin trash inspection methods.

• **Adopt Recommendations**—The following recommendations were adopted by the Committee:

1. The present control and quarantine program should be continued as effectively as circumstances will permit. Any possible improvements to make the program more effective for suppressing heavy infestations and preventing spread of pink bollworms to other areas should be initiated immediately.

2. The pink bollworm situation in Southwestern Oklahoma and the High Plains counties of Texas should be completely re-evaluated at the end of this crop season. Such modifications as are necessary to relieve the present situation should be made so long as they are consistent with reasonable safety requirements for the remainder of the Cotton Belt.

3. Quarantine stations should be established on all major highways leading from Texas to Louisiana and Arkansas to handle both migrant Mexican cotton pickers and mechanical cotton harvesters.

4. It is obvious that the greatly expanded pink bollworm infestation has greatly increased the responsibility placed upon the Division of Pink Bollworm Control to maintain an adequate program over the entire area. The infested states and the adjoining states have shown a willingness and determination to do everything possible to help maintain an adequate program. To do so the present federal appropriation for pink bollworm control should be maintained at least at the present level.

5. An intensified educational program should be developed throughout the infested and adjoining states to promote better public relations and encourage local participation and support for the program. Local particiption can be most effective through the organization of aggressive grower committees.

New Bulletin of Interest To Oil Mill Operators

Crushing capacity of oil mills by geographical areas and states, estimated percentage of excess crushing capacity by states and regions and other facts of interest to operators and managers of cottonseed crushing mills are contained in a recent publication.

Cottonseed crushers may obtain a copy by requesting "Cottonseed Oil Mill Characteristics and Marketing Practices," Agriculture Information Bulletin 79, from the Fats and Oils Branch, Production and Marketing Administration, USDA, Washington, 25, D. C.

George W. Kromer and Thomas B. Smith, agricultural economists, are the authors of the study, conducted under the direction of C. B. Gilliland, chief, research division, Fats and Oils Branch, and under the immediate supervision of Donald Jackson, principal agricultural economist of the division.

Illustrated by maps, charts and graphs, the bulletin is divided into the following major divisions: volume and seasonal characteristics of the industry, operating practices and costs, and revenue of cottonseed oil mills. Among many topics covered under these divisions are utilization of crushing capacity, labor requirements, costs of labor, fuel and materials, geographical variations in mill prices for products, and size of mills and price of cottonseed products.

Supervised Insect Control Aids California Cotton

Nineteen entomologists, especially trained in cotton and alfalfa insect control, are regularly surveying fields in California's San Joaquin Valley for signs of insect pests. Hired by growers, the entomologists visit each field about once weekly and recommend control measures when needed. Each recommendation is tailored to fit the needs of the individual farm.

Now in its seventh year, the supervised control program was developed by the University of California. The university trains the entomologists, but the service is managed by and voluntary for cotton growers.

Maid of Cotton Ends Triumphant Tour

Maid of Cotton Pat Mullarkey returned to her home in Dallas July 15 after a three-week tour of South America during which songs and poetry were written in her honor and horse races named for her. Rio de Janeiro, Sao Paulo, Lima and Panama City were among the cities visited on the flying tour sponsored by the National Cotton Council and Braniff International Airways.

A Fourth of July ball, racing event at the Sao Paulo Jockey Club, reception given by the U.S. Consul General and visit to the Cotton Exchange were some of the events during her visit to Sao Paulo, Brazil's leading textile center. An autographed picture of Miss Mullarkey added 4,000 cruzeiros ($200) to the cancer fund campaign in an auction at a benefit tea and fashion show at Santos, resort spot near Sao Paulo.

Clarence Campbell Dies July 2 at Memphis

Clarence Campbell, president, Planters Gin, Greenville, Miss., died July 2 in a Memphis hospital following an operation. The owner of farming properties near Greenville, he was a director of the Washington County Farm Bureau, a director of the Lake Lee Hunting and Fishing Club, a member of the Methodist Church and an active leader in sports and youth programs.

He is survived by his wife; a daughter, Mrs. Clayton Brumell, Waco, Texas; and two sons, Jack and Dixon Campbell, Greenville.

13 States Represented at Conservation Meeting

Thirteen states were represented at the Southern Regional Extension Conference on Soil and Water Conservation, July 17-19, at Mississippi State College. College soil conservationists, agronomists and others participated in land judging contests and heard discussions of soil conservation topics.

Expects Feed Demand Drop Followed by Good Growth

A brief period of "leveling out" in demand for feeds during the next 12 months but a good longtime outlook is foreseen by Dean McNeal, vice-president, Pillsbury Mills, Minneapolis.

Addressing the recent convention of the Ohio Grain, Mill and Feed Dealers Association in Columbus, McNeal concluded:

"The evidence seems to indicate that the feed industry may face a brief period of 'leveling out' or even a slight decline in volume some time during the next 12 months. This breather should be a temporary and not too serious pause in the otherwise rapid growth of this industry.

• Progress of the Crop •

BELTWIDE, best news of the week came from West Texas, where big-crop rains sent prospects soaring for a record production. Worst news is from the Rio Grande Valley, where boll weevils, pink bollworms and adverse weather are causing severe crop damage and forcing abandonment of some fields.

Overall, though, the Beltwide picture is good. There is less urgency for moisture in the Eastern Belt than in other sections, but Georgia and Alabama could stand a good general rain as this is written.

Cultivation is good to excellent, but plants generally are small and growth not as rapid as normally. In some areas blooming is profuse and fruiting satisfactory. Cotton insects are being held in check and damage is somewhat under that recorded at this time last year. The notable exception is Texas' Rio Grande Valley.

■ USDA - Atlanta reports for the **SOUTHEAST:** Weather conditions over most of the area were good to excellent for progress of the crop and insect control, but rain is needed.

North Carolina reports little or no recent increase in boll weevil infestation in most counties, but in some infestations are rising because of first generation emergence from squares. Red spider and bollworm infestations have been light.

■ The crop continued to make good progress in the **MIDSOUTH**, according to USDA-Memphis. Beneficial scattered showers have helped but a general rain is still needed, especially in those sections that did not get the showers. Plant growth was retarded somewhat by hot, dry weather. However, cotton is blooming freely in most sections and early cotton is putting on fruit.

Insect damage to cotton in the Midsouth so far has been light, but the boll weevil—which showed up early in Louisiana this year—is still a threat and must be watched closely.

■ In **TEXAS**, the drouth continues in most sections of the state, but generally cotton is holding up remarkably well. As this is written (July 17), light showers to light rains are falling east of a line from Fort Worth to Waco and may continue through the 18th. Fields in North and Central Texas are in good condition. Much of the West-Central area of the state is still drouth-stricken and the lack of rain is reducing prospects. Earlier in the week, showers in the Coastal Bend and upper coastal counties favored growth and fruiting. Harvest continued active in the Lower Valley and was started in adjacent counties in the Coastal Bend.

The weekend of July 12 found the South Plains of Texas getting downpours that continued into this week. Prospects are, of course, greatly improved and some observers feel the dryland areas have enough moisture to carry the crop through to Aug. 1. Timely August rains, it is said, could give the Plains a record production. Previous largest was 1,620,000 in 1949, from an acreage of 600,000 less than this year.

Elsewhere in Texas, soaking rains are needed in spite of the fact that in most drouth areas cotton is holding its own. In some areas, of course, the hot dry weather and lack of surface moisture have severely damaged the crop.

The Texas insect report for July 15 says that conditions so far have not been favorable for leafworms to develop and spread except in the Rio Grande Valley. Overall, boll weevil infestations are lighter than at the same time last year. Bollworms appeared in many fields in some sections, but the infestations are considered low. Spider mites and aphids have increased to damaging infestations and need controlling in a few spots in scattered fields in some areas.

During the past 10 days, however, there has been a tremendous buildup of the pink bollworm and boll weevil in the South Texas quarantine area and adjacent Mexico. Rains in the Lower Valley have been a contributing factor to the increase of the insect population. Green boll inspection shows most of the fields infested. The infestation is heaviest in fields where stalks were destroyed late last season, some fields showing above a 90 percent infestation, with three worms per boll.

In the Lower Valley, the Valley Ginners Association and the Cotton Improvement Committee are requesting a contribution of 10 cents a bale from each farmer to be used for hiring inspectors for early stalk destruction and for cottonseed improvement.

In the Coastal Bend section, farmer meetings are being held for educational purposes in order to acquaint all people connected with the cotton industry of the seriousness of the pink bollworm situation. A meeting was held at Robstown July 8 and a permanent pink bollworm committee appointed for the county. A similar meeting was held at Sinton July 10. Field trips to study the pink bollworm were planned at these meetings and every effort will be made to obtain early destruction of cotton stalks this year.

■ Spotted light showers to heavy rains benefited the crop in **OKLAHOMA**, but a good general rain is badly needed. In Central and Eastern Oklahoma boll weevil infestations have reached the damaging point in many counties. The number of bollworm eggs has increased in poisoned fields in the eastern part of the state, but little increase was noted in unpoisoned fields. Beneficial insects are doing a fair job in the unpoisoned fields. There has been some increase in fleahopper infestations, and grasshoppers are a threat around the edges of fields.

■ In the **FAR WEST**, USDA-Bakersfield reports, growing conditions were near ideal, with dry hot days and warm nights in California and Western Arizona. Light to heavy showers accompanied by wind occurred in the rest of the area. However, no damage to the crop was reported as a result of the rains. The first Far Western bale produced this year was ginned in Arizona on July 7.

There has been an increase in bollworms, lygus and stink bugs in Arizona.

New Mexico reports a few bollworm eggs and worms have been found in the Artesia and Carlsbad area, with light infestations of aphids and red spiders still present. In the Mesilla Valley, the bollworm population is still increasing and some fields have a sufficient count to require control. Light infestations of stink bugs and aphids are reported in the Mesilla Valley, and some increase in lygus bugs.

Bemis Booklets Designed To Stimulate Voting

As part of a continuing campaign to stimulate Americans to greater interest in political and economic affairs, Bemis Bro. Bag Company is promoting a new series of pictorial booklets dealing with the importance of the vote.

In addition to mailing the booklets direct to many groups, the firm is advertising them and urging other organizations to obtain supplies for distribution. The booklets are made available at a low cost, and may be obtained from Harvey Publications, Dept. B, 1860 Broadway, New York 23, N. Y.

Buckshot Tour to Climax Delta Land Use Week

Farmers of 18 Mississippi counties will participate Thursday, July 24, in a tour of the new buckshot research area at Delta Branch Experiment Station, Stoneville. Inspection of the blackland area will be the climax of Delta Land Use Emphasis Week, which began July 20.

The tour will be the first major public inspection of varied agricultural experiments being conducted on buckshot land, the Delta's main problem soil. The 466-acre buckshot addition to the station was made available in 1949 by the Delta Research Foundation, a non-profit organization founded by Delta Council. The group will assemble at 1:30 p.m. on the station campus at Stoneville to begin the tour.

Delta Station Adds Five New Research Workers

Five research specialists have recently joined the Delta Experiment Station staff at Stoneville, Miss., Dr. William L. Giles, superintendent, has announced.

Emory Gene Morrison will conduct research on livestock management and feeding. He has been at Mississippi State College since January, after three years at the University of Tennessee.

William W. Watson is a new horticulturist at the station, working with garden and truck crops.

George M. Furnival, at Duke University for the past two years, is associated with the U.S. Foresters at the Delta Branch of the Southern Forest Experiment Station. He will be superintendent of the experimental areas, including the Delta experimental forest, and assist on forest research problems.

Chester McWhorter, who received his master's degree in agronomy this spring from Mississippi State College, is working with weed control projects.

A recent Mississippi State College graduate, Floyd Fulgham, is now assisting on cotton machinery projects in the station mechanization department.

At Purdue, Sept. 9-11

Soybean Group to Discuss Research

■ WORK on beans, products to be outlined by two USDA leaders. Final event will be agronomy farm field trip.

Government research on soybeans and soybean products will be covered by two USDA authorities at the thirty-second annual convention of the American Soybean Association at Purdue University, Lafayette, Ind., Sept. 9-11, George M. Strayer, secretary-treasurer, Hudson, Iowa, has announced.

They are M. G. Weiss, principal agronomist at the USDA Bureau of Plant Industry, Beltsville, Md.; and Reid T. Milner, director of the Northern Regional Research Laboratory, Peoria, Ill. Milner will bring the convention up-to-date on soybean research work at the Laboratory. Weiss will talk on the soybean breeding program of the Department.

"Governmental research on soybeans and soybean products has played a vital role in the growth of the soybean crop and the soybean industry in the U.S.," said Strayer. "It has been estimated that the release of new varieties alone by the U.S. Department of Agriculture has resulted in a 350-million-dollar annual addition to the national income."

Formal sessions of the convention will be held at Purdue Union at the University, Sept. 9-10. The third day will feature a field trip to the Purdue Agronomy Farm. It will coincide with the annual corn and soybean field day for Indiana farmers held at Purdue each September, Strayer said.

Advance hotel reservations should be sent direct to Purdue Union or Fowler Hotel at Lafayette, Ind.

Attendance is open to all persons interested in the production, handling, processing or utilization of the soybean crop, regardless of whether or not they are members of the American Soybean Association.

Dan Walter Davis Marries Miss Coffman July 12

Dan Walter Davis and Miss Mildred Drue Coffman were married July 12 at the Goree, Texas, Methodist Church. The former Miss Coffman is the daughter of Mr. and Mrs. Orb Coffman of that city. The bridegroom is the son of Mr. and Mrs. Roy B. Davis, Lubbock, Texas, where Mr. Davis is manager of Plains Cooperative Oil Mill.

In Experiment Station Tests

Hulls Are Better Feed Than Burs, Stalks or Gin Trash

COTTON BURS, stalks and gin trash have much less feeding value than cottonseed hulls and their use should be limited except in emergencies, says the NCPA Educational Service, pointing out that the chemical analysis of cotton burs, as found in feeding tests, appears to indicate a higher feeding value than the burs actually have.

A. L. Ward, director of the Educational Service, cites two experiment station tests proving the outstanding superiority of cottonseed hulls over cotton burs, gin trash and ground cotton stalks. While the tests and experience of feeders show that burs and gin trash may be used in an emergency, cottonseed hulls are more palatable, produce better gains and make more profit for feeders.

In 1935, the Texas Experiment Station, at Spur, Texas, compared ground cotton burs with cottonseed hulls in a ration for dry-lot feeding of Hereford steer calves weighing 450 pounds. The calves which received hulls were fed a daily ration of 2.5 pounds of cottonseed meal; 2.2 pounds of kafir grain; and all of the cottonseed hulls they would eat. Another lot was fed in exactly the same manner except ground cotton burs replaced the hulls. The following conclusions were reached by the research workers who conducted the test:

"After 42 days the calves fed burs were so weak that they could not be continued on the burs. They had lost 1.7 pounds per head, while Lot 1 had gained 85 pounds per head. On replacing ground burs with cottonseed hulls and feeding in addition 2.5 pounds of alfalfa hay, the calves began making high gains. Five Hereford range cows were fed burs ground and unground with 3 pounds of cottonseed meal per head daily and lost weight. These old cows that were supposed to eat anything did not eat more than 5 pounds of the burs per head daily."

The Texas Experiment Station, at El Paso, Texas, published a report in 1950 of a feeding trial at that station using gin trash and cotton stalks in comparison with cottonseed hulls in a growing ration for yearling steers. Gains were considerably less on the gin trash than when cottonseed hulls were fed and ground cotton stalks had even less value than gin trash. This report gave the following summary which describes the results of the experiment:

"Cotton stalks had no value in comparison with cottonseed hulls at $8.00 per ton and gin trash at $5.92 per ton. Gin trash at $5.92 per ton and cottonseed hulls at $8.00 per ton had equal value as measured by cost of gain."

CALENDAR

Conventions • Meetings • Events

• September 1-2—Ninth Annual Spinner-Breeder Conference, Greenville and Stoneville, Miss. Sponsored by the Delta Council, Stoneville.

• Sept. 9-10—American Soybean Association, thirty-second annual convention. Purdue University, Lafayette, Ind. Geo. M. Strayer, Hudson, Iowa, secretary-treasurer.

• October 22-24—Sixth Annual Beltwide Cotton Mechanization Conference. Bakersfield and Fresno, Calif. For information write: National Cotton Council, P. O. Box 18, Memphis 1. Tenn.

1953

• Jan. 26-27-28—National Cotton Council of America, fifteenth annual meeting. Dallas, Texas. Wm. Rhea Blake, P. O. Box 18, Memphis 1, Tenn., executive vice-president-secretary.

• March 3-4—Oklahoma Cotton Ginners' Association annual convention. Skirvin Tower Hotel, Oklahoma City, Okla. J. D. Fleming, 1004 Cravens Bldg., secretary.

• March 23-24-25 — Arkansas-Missouri Ginners Association annual convention. Midsouth Fairgrounds, Memphis, Tenn. W. Kemper Bruton, Blytheville, Ark., executive vice-president. To be held concurrently with Midsouth Gin Supply Exhibit.

• March 23-24-25—Midsouth Gin Supply Exhibit. Midsouth Fairgrounds, Memphis, Tenn. For information, write W. Kemper Bruton, executive vice-president, Arkansas-Missouri Ginners Association, Blytheville, Ark. Arkansas-Missouri and Tennessee ginners' associations will hold annual conventions in connection with the Exhibit.

• March 23 - 24 - 25 — Tennessee Cotton Ginners Association annual convention. Midsouth Fairgrounds, Memphis, Tenn. W. T. Pigott, P. O. Box 226, Milan, Tenn., secretary-treasurer. To be held concurrently with Midsouth Gin Supply Exhibit.

• April 6-7-8 — Texas Cotton Ginners' Association annual convention. State Fair Grounds, Dallas, Texas. Jay C. Stilley, 109 N. Second Ave., Dallas, Texas, executive vice-president.

• April 13-14—Valley Oilseed Processors Association annual convention. Buena Vista Hotel, Biloxi, Miss. C. E. Garner, 1024 Exchange Bldg., Memphis, Tenn., secretary.

• May 18 - 19 — Oklahoma Cottonseed Crushers' Association annual convention. Lake Murray Lodge, Ardmore, Okla. J. D. Fleming, 1004 Cravens Bldg., Oklahoma City, Okla., secretary.

• June 3-4-5—Tri-States Oil Mill Superintendents' Association, twenty - eighth annual convention. Peabody Hotel, Memphis, Tenn. L. E. Roberts, DeSoto Oil Company, Memphis, secretary-treasurer.

• Clifton Kirkpatrick, Memphis, and Carlton Power, Dallas, both National Cotton Council staff members, were recent visitors to The Cotton Gin and Oil Mill Press office.

COTTONSEED MEAL research is the subject of the conversation of this group, which includes some of those who attended the informal meeting that was held July 14-15 in Dallas by federal and state research workers and representatives of the oil mill industry and others interested in cottonseed meal. Shown, l. to r., are Dr. J. R. Couch, Texas A. & M. College, College Station; Dr. C. R. Grau, University of California, Berkley; Dr. A. B. Watts, Louisiana State University, Baton Rouge; Dr. A. M. Altschul, Southern Regional Research Laboratory, New Orleans; and A. L. Ward, director, and Garlon A. Harper, assistant in nutrition, NCPA Educational Service, Dallas.

In Dallas, July 14-15

Research on Meal Talked by Group

■ INFORMAL discussions held to review progress and plan for work seeking to widen market for feed products of oil mills.

Informal discussions of nutritional research with cottonseed meal were held July 14-15 in Dallas at a meeting of federal and state research workers and representatives of the cottonseed crushing industry and others interested in increasing the usefulness of cottonseed meal as poultry and livestock feed.

Purpose of the gathering, called at the request of leaders conducting research with special-process cottonseed meals in cooperation with the Southern Regional Research Laboratory, New Orleans, and the NCPA Educational Service, was to exchange information on current progress and views as to future planning of the work.

Special-process meals used in the program have given excellent results in poultry and swine feeding tests conducted by a number of state and federal nutritional authorities. Progress reports on these developments have been made at two conferences at the Southern Laboratory and through reports to cottonseed crushers by the Educational Service.

Industry leaders and research workers are confident that, with further research, cottonseed meals can be made commercially available that will be equal or superior to other sources of protein now extensively used in feeding poultry and swine. Because hogs and poultry are major users of protein concentrates, and commercial cottonseed meal as produced in the past has been used only in limited amounts for this purpose, these leaders believe that these markets represent a tremendous potential outlet for cottonseed meal.

Council Reminds Farmers To Apply Insecticides

For most complete coverage and effective control of cotton pests, insecticide dusts should be applied when the air is calm, the National Cotton Council reminds cotton farmers.

Winds cause the poison to drift, giving incomplete coverage and poor control. The Council notes that mid-day application of organic dusts should be avoided since rising air currents and winds prevent desired coverage, rapidly dissipate the more volatile insecticides, and carry the poison away as fast as it is discharged.

If rain of one-tenth of an inch or more occurs within 24 hours after dusting, farmers are advised to repeat application immediately of calcium arsenate, dieldrin, or toxaphene. If rain of a tenth of an inch or more occurs within 10 hours, a farmer should immediately repeat application of benzene hexachloride (BHC) or aldrin.

During rainy weather intervals between applications should be shortened.

Other guides for the use of insecticide dusts:

(1) Injury to large cotton by dusting equipment may be reduced by using fenders on tractor wheels.

(2) For best results, aerial insecticide applicators should fly as close to the cotton as conditions permit, usually from five to ten feet above plants.

(3) Airplane swaths will vary with the size plane and type of equipment and should not exceed the area for which equipment is designed.

(4) Flagmen should be stationed in the fields to guide pilots. Results are more effective when swaths are flagged on proper widths.

Poster Gives Facts

Explains Penalties On Bale Weights

■ FARMERS, ginners, shippers and compressors urged to cooperate in making Texas bale a preferred item in cotton markets of the world.

Penalty rates of the Texas Cotton Association for underweight and overweight bales, and the reasons for these penalties, are explained in a poster being distributed through the cooperation of the Texas Cotton Ginners' Association and the Texas Cotton Association.

Cotton buyers do not want to collect these penalties, the poster emphasizes, but much prefer to handle bales of normal weight without penalty. The penalties are necessary, however, to protect shippers, compressors and ginners against actual loss caused by underweight or overweight bales. These penalties in many instances will not cover the actual out-of-pocket costs.

"It is hoped, therefore, that as a team, the farmer, the ginner, the compressor and the cotton shipper will cooperate to make the Texas bale a preferred package in the cotton markets of the world," the poster adds.

Penalty rates listed for underweight bales are $1 for bales weighing less than 450 pounds but not under 435; $3 for bales of less than 435 pounds but not under 400; and $4 for bales weighing less than 400 but not under 350 pounds.

Bales weighing as much as 600 pounds but not more than 649 pounds carry a penalty rate of $1; bales weighing as much as 650 pounds but not more than 699 pounds are penalized $2; and bales weighing less than 350 pounds or more than 700 pounds are penalized $5.

Information on the problem of bale weights is presented on the poster from the viewpoint of the farmer, the ginner, the compressor and warehouseman and the shipper. It is pointed out that about 60 percent of Texas cotton was exported in the 1951-52 season, while in normal years the average is 75 to 80 percent.

Juel Weaver in Hospital Following Operation

Friends of Juel E. Weaver, Midlothian, Texas, will be sorry to learn that he is in the Medical Arts Hospital, Dallas, following an operation. He is manager and treasurer of the Producers Cooperative Mill. While he is reported to be making favorable progress, he probably will remain in the hospital for some time.

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FOR SALE—One (1) No. 8 Helm cold cake breaker with extra set rolls, $500.00. 24 No. 63 breast knife bars (new) $10.00 each. 9 No. 60 breast knives (new) $5.00 each. 58 No. 35 cylinder knives (new) $3.00 each. All these knives and bars are for 42" Chandler huller.—McAlester Oil Mill Co., Box 275, McAlester, Okla.

FOR SALE—Complete six press hydraulic oil mill, 141 saw Carver linters, steam power.—Hughston Sales Co., Dallas, Texas, 4515 Prentice, Phones FOrest 8-8403 and FOrest 8-7882.

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FOR SALE—3-80 saw Lummus super jet cleaners, complete with short gin flues, lint flue, Lummus suction condenser with dust flue, supports and lint slide, and condenser suction fan. Above equipment ginned one season.—A. K. Morrison, Rossville, Tenn.

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FOR SALE—One vertical 3-plunger Continental hydrauiic cotton press pump with tight and loose pulley, $200.00. 1 5-cylinder wood Hardwicke-Etter cleaner, good condition, $100.00. 1 wood iron bound cotton press, wood sills, ram and casing, with Cameron tramper, $300.00.—McAlester Oil Mill Co., Box 275, McAlester, Okla.

FOR SALE—Modern, well equipped 4-80 Continental gin plant, model C V-belt drive brush gins with "30" fronts, new Mitchell special super units, 12-cylinder Murray steel cleaner, new Lummus steel press, steel condenser and tramper, good 1947 M-M 6-cylinder 242 h.p. butane engine, Mitchell drying system, iron-clad gin building, new 1942 modern 4-room manager's residence, housing for crew, 5,000-bale location in Bailey County, Texas (Stegall Community). Price $45,000 with $20,000 cash, terms on balance. Contact N. B. Embry, Box 768, Littlefield, Texas, phone 973.

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FOR SALE—4-80 saw model 30 Continental gin stands which are in good condition, just having been completely reworked. Priced for quick sale. —John C. Webb and Sons, Demopolis, Ala.

CLEANERS AND SEPARATORS—One 43" Stacy all steel 6-cylinder straight line. One 52", 6-cylinder Murray light steel incline. One 12-section Lummus thermo cleaner-drier. One 52" Murray steel "quad." Wood Frame Cleaners: One 5-cylinder and one 7-cylinder 50" Hardwicke-Etter incline type. One 50", 6 cylinder Continental straight line, gravity machine. Separators: One 50" Continental steel cleaner-separator. One 52" type "MS" Murray steel revolving drum type. One 48" Hardwicke-Etter wood dropper.—R. B. Strickland & Co., 13-A Hackberry St., Tel. 2-8141, Waco, Texas.

FOR SALE 4-90 Murray gin complete, with super Mitchells, diesel power, steel buildings, all new. 6,000 acres irrigated cotton planted, terms, come see, or call 991 or write Box 943, Littlefield, Texas.

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EXPERIENCED gin manager, repairman, desires position. Good references. Years of experience. Available immediately. Write W. J. Allison, 1605 W. Page, Dallas, Texas.

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6—200 hp. 3/60/440/900 rpm, slip ring	2—100 hp. 3/60/220/900 rpm, squirrel cage
4—150 hp. 3/60/2300/900 rpm, slip ring	4—100 hp. 3/60/2200/900 rpm, slip ring
2—150 hp. 3/60/440/900 rpm, slip ring	2— 75 hp. 3/60/440/900 rpm, slip ring
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FOR IMMEDIATE SALE—One model 6LROU Waukesha engine with tower and heat exchangers complete, direct connected to Allis-Chalmers generator, 360 kw, 900 r.p.m., 440 volt, 3-phase, 60 cycle, with excitor and panel.—South Texas Cotton Oil Co., Taylor, Texas.

FOR SALE—1 Endless belt, 40 ft. 16 in. 6 ply. 1 belt 39 ft. 16 in. 6 ply. A-1 condition. Also several pulleys, various sizes.—Cotton Farmers Co-Op. Gin Co., Hobart, Okla.

Insect Demonstrations Are Successful in Arizona

Two highly successful demonstrations of cotton insect control were held at Litchfield Park, Arizona, July 7 and at Arizona State College, Tempe, July 8. Dr. J. N. Roney, Extension entomologist, reports that the interest in these meetings, and a similar demonstration June 25 in Pinal County, has resulted in tentative plans for more meetings in the future.

Farmers and agricultural workers were taken to cotton fields where each person made 50 sweepings with a bug net, after which the injurious and beneficial insects were identified. Plants also were inspected for bollworms and bollworm eggs. Other features of the meetings included movies and discussions. More than 100 farmers and insecticide salesmen attended the two meetings.

Arkansas-Missouri Ginner Meeting Dates Listed

Tentative dates for annual district meetings have been announced by the Arkansas-Missouri Ginners' Association. Meetings will be held at the following places: Magnolia, 10 a.m., Aug. 13; McGehee, 10 a.m., Aug. 14; Pine Bluff, 10 a.m., Aug. 15; Walnut Ridge, 10 a.m., Aug. 19; Newport, 5 p.m., Aug. 20; England, 10 a.m., Aug. 21; Mariana, 10 a.m., Aug. 22; Earle, 10 a.m., Aug. 26; Manila, 10 a.m., Aug. 27; Kennett, 10 a.m., Aug. 28; and Sikeston, 10 a.m., Aug. 29.

Many State Feed Groups Set Conference Dates

Feed organizations and agricultural colleges in a number of cotton states have announced dates for meetings and nutrition conferences this summer and fall.

North Carolina Feed Manufacturers Association will meet Aug. 15-16 at Ocean Forest Hotel, Myrtle Beach, S. C.

The Oklahoma Poultry Hatchery Convention will be Aug. 20-22 at Oklahoma A. & M. College, Stillwater.

The Arkansas Formula Feed Conference, Sept. 25-26, at the University of Arkansas, Fayetteville, will be sponsored by the college, Arkansas Feed Manufacturers Association and Midwest Feed Manufacturers Association.

The annual meeting of the Association of American Feed Control Officials is scheduled, Oct. 1-2, at the Shoreham Hotel, Washington.

Oct. 16-17 are the dates for the Texas Feed Nutrition Conference at Texas A. & M. College, College Station.

Oklahoma Formula Feed Conference will be held at Oklahoma A. & M. College, Stillwater, Oct. 30-31.

The University of Missouri, Columbia, will be host for the Missouri Animal Feeding Short Course, Nov. 6-7.

Extend Regulated Area for White-Fringed Beetle

Moderate extensions of the white-fringed beetle regulated area in Alabama, Florida, Louisiana, Mississippi and Tennessee have been announced by USDA.

In the regulated area, extended to cover infestations found last year, USDA and cooperating states supervise movement of plants that might spread the beetle. Cotton, peanuts, tobacco, corn and other crops are damaged by the beetle grub in the soil attacking their roots.

Soybean Group Asks OPS Action on Meal Price

A group of soybean processors and producers has filed a plea in the District of Columbia Emergency Court of Appeals seeking a mandatory order for the Office of Price Stabilization to act on a protest against the soybean meal ceiling price. Under court procedure, the court must serve the petition on Ellis Arnall, stabilization chief, and he must reply within a week.

The protest upon which the group seeks prompt action was filed against the maintenance of the ceiling price of $18 per ton, bulk, Decatur, Ill., as established in OPS regulations.

Stangel, Harper Aid Texas Fair Livestock Shows

Garlon A. Harper, NCPA Educational Service, Dallas, and Dean W. L. Stangel, Texas Technological College, Lubbock, are among livestock leaders named as superintendents for 1952 State Fair of Texas livestock shows by Ray W. Wilson, livestock manager. Dean Stangel is general superintendent, while Harper is in charge of the beef cattle show. C. G. Scruggs, associate editor, The Progressive Farmer, Dallas, will be arena director.

May Canadian Cotton Use Reaches Postwar Low

With May cotton consumption in Canada at the lowest monthly level since the war, total consumption for the first 10 months of the 1951-52 season amounted to 298,080 bales, 27 percent below the 410,000 bales during the corresponding period of 1950-51. USDA reports the trade expects total consumption this season to be about 350,000 bales, compared with 479,000 bales consumed in 1950-51.

While demand for cotton textiles has been slack for about a year, the trade believes that the bottom of the current slump has been reached. It is thought that inventories of textiles have largely been adjusted.

Raw cotton imports during the first nine months of 1951-52 of 284,000 bales compared with 413,000 bales imported during the same period last season. Imports from the U.S. have been 267,000 bales against 350,000 a year ago.

75,148 Acres Castor Beans In 122 Texas Counties

Texas castor bean plantings to June 25 totaled 75,148 acres in 122 counties under the CCC program, in addition to some 16,800 acres under contract to the Baker Castor Oil Company in north and northwest Texas, reports the Extension Service. Plantings under the CCC program consist of 11,884 acres under irrigation and 63,263 acres not irrigated.

Producers may obtain latest production and harvesting information from county agents and county PMA offices.

Crop Prospects for 1952 Second Only to 1948

Prospects for 1952 crops now point to a total production second only to the record set in 1948, according to USDA. Total acreages planted to crops and total acreages to be harvested are each slightly larger than average.

Winter wheat outturns have been exceeding expectations where harvest is well along, but additional acreage has been abandoned in some dry areas. Spring wheat prospects declined from the June 1 forecast. An all wheat crop of 1,249 million bushels is now in prospect, a total exceeded only in 1947 and 1948.

Rice is the only major crop which now seems likely to top a previous production record. Feed grains make up a major portion of the large all-crop volume, as usual. Their contributions are a 3,365 million bushel corn crop, exceeded only in 1948; a larger than average quantity of 1,353 million bushels of oats; probably nearly as much sorghum grain as in 1951 but only 208 million bushels of barley, smallest outturn since 1936. Hay supplies will be smaller than for several years, but adequate.

A larger potato acreage than last year and nearly the same yield will provide a slightly larger supply than in 1951, although still nearly a fifth below average. An upturn in sweet potatoes is also in prospect.

• Paul S. Adams, Jr., Dallas, has been recuperating from an emergency appendectomy. Paul, Sr., is with Zimmerman Alderson Carr Company.

Processing of Oil-Bearing Materials

(Continued from Page 17)

nearly $100. In addition, the meal brings about $1.50 per unit of protein, or about $40 per ton. The hulls are waste product, or, as Hutchman (33) states, may be ground for use as a fertilizer conditioner.

COCONUT (Copra)

Coconut oil is obtained from copra, the dried meat of the coconut. Copra is prepared in the coconut-growing areas for export by cracking the nuts, draining the milk, drying by sunlight or artificial means, and removing the dried meat from the shell (34, 37, 43, 78). It is reported (34, 37, 78), however, that the processing of copra for oil in the coconut-growing areas is increasing.

The oil is generally obtained by pressing (21, 34, 37, 43), though solvent-extraction methods may also be employed.

Ryan (61) has reported on the processing of copra and other oil-bearing materials by one cottonseed screw-press mill in California to extend operations from about 9 months on cottonseed to approximately 11½ months. With the exception of copra, changing over from one material to another entails merely changing the size of spacers between the bars of the screw press. Copra has a very high oil content. With the conventional main integral worm shaft, the meal has a tendency to burn in the barrel. In order to overcome this difficulty, water-cooled integral worm shafts are used, and large spacers are used in the barrel to allow the oil to escape rapidly. The only additional equipment required in crushing copra are electro-magnets and permanent magnets to trap any tramp metal present in the copra and vertical hammer mills to disintegrate large pieces of copra.

CORN GERM

Oil is obtained from corn germ, a by-product in the manufacturing of corn products (22, 34, 37, 43, 69).

The dried, byproduct germ is passed through a set of flaking rolls, tempered, and pressed by screw presses or hydraulic presses (34, 37, 43), or solvent-extracted (43, 69).

Starr (69) describes one company's processing of the germ for oil. Approximately one and three-quarter pounds of oil is recovered from each bushel of corn processed. The germs separated during the milling process are dried in a rotary steam drier and then put through screw presses which reduce the oil content from approximately 50 to 15 percent. The press-cake is then flaked and solvent-extracted countercurrently with hexane.

COTTONSEED

See references 11, 21, 30, 34, 36, 37, 43, 48, 54, 78.

CRANBERRY SEED

Cranberry byproducts, oil obtained from the seed and ursolic acid and wax obtained from the skins and pulp, have been produced by a cooperative at a plant in South Hanson, Mass. (36).

The mixture of seeds and skins is washed and dried. The seeds, approximately 41 percent of the washed and dried mixture, are separated by mechanical means. They yield about 20 percent oil by the extraction process (49, 63, 64, 73).

CUCURBIT (Wild Gourd) SEED

Shahani (66), in a discussion of the Buffalo Gourd and of the oil and meal from its seed, describes the pilot-plant extraction of the oil. The seed were cleaned by blowing with air and by separation on a fine shaking-screen to remove the bulk of the light material and dirt. The seed were further cleaned by screening through ¼-inch screen to remove sticks and stones. The cleaned seed were then cracked between corrugated rolls and flaked between smooth rolls to an average thickness of 0.010-inch. The flakes were then solvent-extracted in a batch solvent extraction pilot plant using commercial hexane as solvent.

Shahani states that, although both the seed and the extracted meal are high in protein, they are also high in ash and crude fiber, and consequently, the seed would have to be decorticated prior to extraction, or the meal processed further, to make it suitable as a stock feed.

Curtis (20) and Ault (10) have also pointed out the potential value of the seeds of perennial cucurbits as a source of vegetable fat and protein.

FANWEED (Pennycress) SEED

This seed is a principal component in the grain screenings of wheat grown in the northwest and north central states (36).

Though no report on this particular seed could be found in the literature, the methods used in the processing of grain screenings (see below) are doubtlessly applicable.

FILBERT (Hazel Nut)

Wiegand (76, 77) has stated that extraction of the oil is not difficult. Good

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results may be obtained with the use of a hydraulic press, using a pressure of 2000 pounds per square inch, upon nuts which have been chopped.

FLAXSEED (Linseed)

The first step in connection with any of the methods of oil extraction for this seed is to separate the foreign matter, or dockage, which consists of weed seed and plant debris. This is accomplished by specially designed screening and blowing equipment (34).

The oil is recovered from seed crushed between flaking rolls by hydraulic or screw pressing (28, 30, 34, 78), or by solvent extraction (28, 30, 37). In hydraulic pressing, the crushed seed is subjected to a pressure of about 4000 pounds per square inch, after tempering at 180° to 200° F. for maximum oil recovery (51). The resulting raw linseed oil is allowed to settle, is filtered, aged and again filtered prior to shipping.

Goss (28) reported that some mills now crush both soybeans and linseed in the same continuous presses, since only minor changes are necessary to adapt the machine to either oilseed. He also stated that both batch and continuous solvent extraction had been used to a limited extent.

GRAIN SCREENINGS (Weed) SEED

At least two plants in the United States, one at Great Falls, Mont., and one at Fresno, Calif., press or solvent-extract grain screenings for oil (36). The processing of grain screenings for oil is also carried on in Canada (38).

Grain screenings are collections of miscellaneous weed seed together with some broken grain. Because of the varied content of screenings from different types of grains, the content and the nature of the oil and meal obtained from them also varies. Screenings may be composed of such seeds as lamb's-quarters, wild mustard, stinkweed, fanweed, hare's ear mustard, tumbling mustard, pig weed, ragweed, fox tail, buck wheat, sunflower, wild oats, and others.

In 1946, it was reported by Bosley (15) that a vegetable-oil processing mill in Montana paid, on the average, 2 cents per pound for weed seed (about $40 per ton). The material processed consisted of approximately 75 percent Jim Hill mustard and 25 percent rabbit ear mustard with some fanweed.

Lamminen (38) has described a solvent extraction plant erected in Canada for the processing of grain screenings by solvent extraction.

GRAPE (Raisin) SEED

The commercial utilization of waste pomace of the grape-processing industries was investigated some years ago by Rabak (55, 57). More recently, Kester (36) states that at least three mills in California produce grapeseed oil by extraction of the seed of wine pomace.

The manner in which the California Products Company recovers oil from raisin seed has been discussed some years ago by Paul (53) and recently in Industrial and Engineering Chemistry (8). The seed are washed with cold water in large concrete tanks to remove sugar and any adhering fruit pulp. The seed are then run through the inside of a revolving cylindrical screen having ⅛-inch perforations. The fruit pulp is retained on the screen while the seed pass through. The seed are then dried in a rotary steam-jacketed drier to prevent molding during storage. The chaff is removed from the dried seed with rotating wire brushes similar to those used in cleaning grain; the seed is then sent to storage. After accumulating about 300 tons of seed, which takes about 12 months, the process for oil recovery is started. The seed is crushed in five-high roll mills and cooked for about 20 minutes in a continuous meal cooker which is heated to about 215° F. with steam in a closed coil. The oil is then recovered in hydraulic presses.

Other reports (4, 44, 70) deal with the recovery of oil from winery grapeseed. Marx (44) states that the separation of the seed from the wet pomace is accomplished by screening. The seed are then promptly dried in rotary drum driers to avoid damage by molding or "heating." This separation is usually performed at the winery to reduce costs of transportation to the oil mills.

Valebregue (70) reports that the oil is generally obtained by solvent extraction. All types of solvent-extraction plants are not suitable, but can be adapted for the processing of grapeseed oil. However, Kester (36) states that, as now practiced, solvent extraction of grapeseed is not wholly satisfactory because of difficulty in filtering the miscella.

Kester reports that results of oil recovery from ground whole grapeseed with a screw press have been unsatisfactory, owing mainly to the high percentage of husks (40 to 60 percent). Decorticated seed, however, handle quite well (34, 36).

Valebregue (70) states that, despite the fact that grapeseed oil is a relatively

expensive product, there is a large demand for this oil.

JOJOBA SEED (Goat Nut)

The oil contained in the seed of the jojoba is in reality a liquid wax, and for this reason the jojoba is unique among oilseeds (34, 36). This oil, or wax, is non-nutritious but has a number of non-food uses.

The seed can be processed for the oil in screw-type equipment (36). Neiswanger (50) has stated that this seed can be processed in any cottonseed oil mill.

MILKWEED SEED

Berkman (12) reported that in 1938, the Milkweed Products Development Corporation established a fellowship at Iowa State College, Ames, Iowa, to promote extensive studies of oil, wax, and other byproducts derived from milkweed. The results established beyond doubt that mechanical extraction of the oil by expulsion methods is not economically sound for commercial production, due to specific physical properties of milkweed seed. Solvent extraction is the most suitable method, and most solvents used for soybeans gave excellent results. The yield of oil by hexane extraction was 21.4 percent.

MUSTARD SEED

Brown and yellow varieties of mustard are grown principally for condiment manufacture. As a preliminary step in the making of food products, oil is often obtained by pressing (34, 36).

The press-cake from the oriental variety of mustard is not suitable in itself for condiment manufacture but may be incorporated as a filler with condiment mustard (36).

OKRASEED

Edwards (24) states that okraseed presents no initial cleaning or separation problem analogous to the separation of cottonseed from cotton lint. The mature seed come from the pod as clean, discreet spheres. The hulls are quite hard, however, and the meats have a tendency to cling to small concave hull fragments. Fairly efficient separation has been achieved by cracking rolls set at approximately 0.015-inch, followed by screening through 16-inch sieves and air aspiration.

Holbrook (31), in a report of recent experimental processings, states that experiments indicate that okraseed can be satisfactorily cleaned, hulled, separated, cooked, and pressed by equipment conventionally used in cottonseed oil mills. The cleaning of okraseed is easily accomplished by use of a simple shaker ahead of the hullers. The scalping shaker, found in many cottonseed oil mills, will do a satisfactory job when clothed with two sizes perforated metal, ¼-inch diameter for the seed to pass through and ⅛-inch diameter for the seed to pass over. An aspirator at the end of the shaker to remove light shale from the seed could be used to keep this material from going through the hullers and screens. Hulling and separation may be accomplished satisfactorily in equipment usually used on cottonseed, with changes in metal sizes and other adjustments.

Holbrook states further that in processing the okraseed meats, hydraulic cottonseed equipment is suitable. Best cooking results are obtained in 20 minutes at 245° F. There appears no advantage to be gained by humidifying okraseed from 9.0 to 11.0 percent moisture.

Shearon (67) reports that okraseed was first crushed on a factory scale for edible oil production in early 1948. Sixteen thousand pounds of seed were processed by the Southern Cotton Oil Company at a plant in Louisiana, using conventional cottonseed equipment with minor modifications in method.

OLIVE

The equipment and methods used for the processing of olives for oil vary greatly, even in the same country (34).

Cruess (19) states that the olives are first washed with warm water. They may be treated with a weak (1 to 2 percent) lye solution to remove bitterness before washing with water. This operation takes about one week.

Webster (74) states that the olives are introduced into a disintegrator where flesh and pits are ground. This macerated material is then sent to a "bull wheel" (two heavy stone wheels which are driven around a flat basin) where the fruit cells are ruptured, permitting easier oil extraction. In some mills, according to Cruess (19), crushing is accomplished by passing the olives between fluted steel rolls. Jamieson (34) states that the pits are sometimes not crushed until after the first or second pressings.

The number of pressings varies with mill practice (34). Some mills use two, one at low and one at high pressure; other mills use a total of three or four pressings. It is customary to grind the press-cake of the preceding pressing, usually with the addition of a small quantity of water, re-form the material into cake, and apply higher pressure for further recovery of oil. In each pressing, the pressure is successively increased. According to Jamieson (34), Kirschenbauer (37), and Lewis (40), the last press-cake may contain considerable amounts of oil (12 to 13 percent) and is sometimes subjected to solvent extraction. Petroleum hydrocarbons, chlorinated hydrocarbons, and carbon disulfide are solvents most commonly employed.

The oil is usually obtained by settling and washing and centrifuging the oil, the wash water, and the juice. The oil is filtered, stored for a number of months to permit hydrolysis of the bitter principles, filtered and then packaged (19, 74).

Jamieson (34) has described other processes used for extracting oil from olives.

A process has been developed and patented by the California Packing Corporation in which the olives are crushed without breaking the pits and gradually fed to a specially designed screw press. Only one pressing is made, and the press-cake is reported to contain 4 percent or less of oil. Oil is then separated from the juice by washing and centrifuging operations, and finally filtered.

In the Acapulco Process, finely crushed

(Continued on Page 54)

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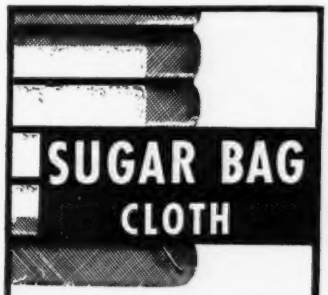

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Research BRIEFS

High Yarn Strength in New Hopi-Acala Cotton

■ HIGH YARN STRENGTH is the outstanding feature of the new Hopi-Acala cotton that is exciting the attention of USDA research men. Following tests at 13 mills, results showed that Hopi-Acala won't be suitable for fine counts as in the case of Egyptian long staple. However, it gives "unusual promise for processing at all lower yarn counts," according to the Agriculture Department. Its yarn strength tested 39 percent above rain-grown cotton and from 26 to 61 percent more than regular mix. The mills spun test lots of the cotton into a wide assortment of fabrics. The new cotton comes from a cross between the well-known Acala and Hopi, a strain formerly grown by Arizona Indians.

Surprise, Surprise!

■ A NEW WRINKLE in the psychiatric dodge is to spike truth serum with alcohol. The idea is to encourage neurotic patients to talk away their troubles. The patients are said to talk more freely and faster, thus saving many hours on psychiatric couches. Seems the psychiatrists have discovered what you and I have known all along; namely, that drink loosens the tongue.

Cotton Cleaners Patented

■ THE PROCESS and machinery worked out at Stoneville, Miss., for cleaning lint cotton from mechanically-picked or roughly-harvested crops has been patented. Several commercial firms are now turning out machines based on the design and procedure, developed by Victor L. Stedronsky and Charles S. Shaw. The two men did their work at Stoneville's U.S. Cotton Ginning laboratory, and their patent is the "public service" variety.

Texas Polio Test a First

■ THE THOUSANDS of children of Houston who submitted recently to special polio injections are the first of the nation to have taken part in such an experiment on so large a scale. The experiment may reveal whether treatment with gamma globulin is effective in preventing paralysis. Half of the children were given this substance—a derivation of the blood—and half of them injections that simply looked like the same thing. In tests with animals, the blood fraction, obtained from human beings, has been effective.

Better Bread Coming?

■ A LOT OF modern bakery bread is hardly worth eating, judging by the reaction of some consumers. Now comes a government order that could mean an improvement in the "staff of life." Certain chemical softeners must be omitted from bread sold across state lines after Aug. 12 of this year, the Food and Drug Administration directs. Officials observe that the softeners could mislead consumers on the age of bread—and, also, that they may be dangerous to health. The softeners concerned are polyoxyethylene monostearate and related compounds.

Home Freezer Note

■ THE TITLE of a new USDA leaflet is the key to whether you would be interested. It's called "What to Do When Your Home Freezer Stops." Write the Office of Information, USDA, in Washington, and ask for No. 321.

Soil Savers

■ THERE ARE at least a dozen reasons that grasses and legumes should be used more widely in the South and elsewhere to save soils. Main ones being recited by farm scientists include these: Legumes and grasses alter soils in such a way as to aid the growth of plant roots; help retain soil moisture; reduce erosion from both wind and water; improve feeding value of crops; maintain and improve fertility; and influence the availability of plant food.

Synthetics Get What-For

■ A WOOL research man, Giles E. Hopkins, technical director of the Wool Bureau, has some hard things to say about synthetic fibers. He thinks they eventually will find a market and serve some use, but that their value is grossly exaggerated. Giles reports that he constituted himself a "one-man guinea pig" to test clothing made of synthetics. "I've bought miracle socks," he reports, "and caught cold walking around with puddles in my shoes while the dye came off to stain my feet. I've bought miracle ties from which I could easily wash off the breakfast egg—only to see lint attracted and held fast to give a startling mottled effect. I bought a miracle suit . . . that I could wear swimming (don't ask me why)—but on my first encounted with a heavy mist it sucked the water through to my skin with chilling efficiency."

Got Valve Troubles?

■ VALVE TROUBLES in tractors are getting special study these days because, says the Agriculture Department, they "have been on the increase." Cooperating in the work are the Illinois Experiment Station and USDA's Northern Research laboratory in Peoria, Ill.

No Flies on Him

■ COMES NOW an inventor with a patent on a fly swatter that not only knocks out the pest, but also disposes of the body. The gadget includes a rotary brush that sweeps the insect into a "fly bin" after it has been killed.

New Soybean Treatment

■ TWO NEW treatments that promise to give good control of weeds in soybeans include a dinitro that is soluble in water, and a compound called "3 chloro IPC." Tests by USDA show up to more than 90 percent control of all weeds by the dinitro, with little harm to soybeans. The sprays were applied before planting.

Southern Lab Leaders Honored for Service

PICTURED ARE SOME of the Southern Regional Research Laboratory employees at New Orleans recently honored for service with USDA. L. to r.: Mason DuPre', Jr., special assistant to the director, who received a 20-year certificate; Paul R. Dawson, also special assistant to the director, honored for 30 years' service; Dr. C. H. Fisher, director, who presented the awards; and Dr. Carl M. Conrad, acting head, cotton fiber division, recipient of a 20-year certificate. Sixty-one other staff members received 10-year certificates.

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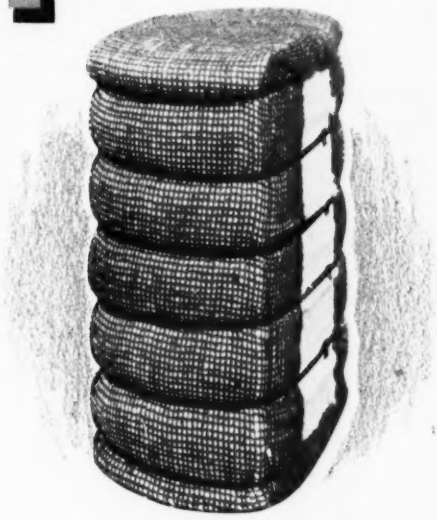

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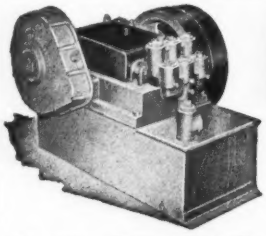

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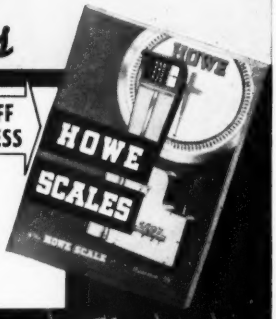

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MUSKOGEE IRON WORKS

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Processing of Oil-Bearing Materials

(Continued from Page 51)

olives, previously freed of pits, are rubbed against a fine screen of copper or nickel wire, supported in a horizontal cylinder, by means of revolving rubber-tipped brushes. The oil, together with fine pulp, is pressed through the screen and subsequently separated.

The so-called "Leon Process" is based upon crushing the whole fruit by means of high-speed steel beaters in a suitable container, the pulp being forced through a grating or screen. Part of the oil and much of the juice is separated by passing the mass between rollers, after which the pomace is broken up and heated slightly without the addition of water, and again pressed in hydraulic presses.

Another method utilizing centrifugation was developed at Lindsay, Calif., reported by Kester (36), and was described above in the section on avocado.

OLIVE KERNEL

Olive kernel oil is obtained from olive pits by pressing or solvent extraction (34). However, the pits are generally not removed in the processing of olives for oil in this country (36).

PALM

Palm oil is obtained from the fleshy portion of the fruit, and is produced in the palm-growing areas mainly by native methods (30, 34, 37, 43, 78). The modern industrial recovery of oil is carried out either by pressing or by centrifuging after cooking in digesters. In any process, dried palm nuts are obtained. These nuts are cracked and the kernels are separated by brine flotation, dried, and readied for export.

PALM KERNEL

At the oil mill, the kernels are cleaned by screening, and any scrap metal removed by magnets. The kernels are crushed between steel rolls and are either pressed or solvent extracted to obtain the oil (30, 34, 37, 78).

PEACH PIT

Peach pits are processed for their oil in the same manner as apricot and cherry pits. The pits are cracked, kernels are separated by brine flotation, and the oil is obtained by pressure or by solvent extraction (34, 36, 63, 64, 65).

Jamieson (34) states that cracking of the thick, hard shell of the peach pit is difficult compared to cracking of the much thinner shell of the apricot pit.

Kester (36) states that one company in California employs hydraulic presses, used in the hot-pressing of olive oil, for the recovery of peach pit oil.

PEANUT

The first operation is the separation of the trash, stones, dirt, etc., from the nuts by machinery. The meats or kernels are then obtained from the nuts by cracking the shells in rolls and separating the shell fragments by screening and aspiration. The oil is obtained by pressure or by solvent extraction (30, 34, 37).

In addition to the mills which produce only peanut oil, Jamieson (34) states that many cottonseed mills process peanuts for oil.

PECAN

Fleming (26) states that the process for recovery of pecan oil is along the

same lines as the extraction of vegetable oils, but only a part of such equipment can be used. The material from which the oil is recovered is, as in the case of walnuts, discarded meats from shelling plants (36), and according to Fleming (27), is composed of approximately 40 percent fine meats and 60 percent fine pecan shells and shell dust.

The meats are separated from the shells by brine flotation, described by Whitehead (75), and are subjected to pressure to obtain the oil (26, 36).

The press-cake is not suitable for stock feed because of the high shell and tannic acid content. This cake is processed to recover tannin and the resdiue then sold for stock feed.

Fleming (26) states that the pecan shells are processed in carbonizing plants to produce crude charcoal. Pecan press-cake may also be treated in the same manner.

PLUM (Prune) PIT

Plum pits may be processed for oil, using procedures similar to those for apricot and peach pits (65), and cherry pits (34).

RAPE SEED

Rape seed is one of the minor oil crops in this country and is produced in Idaho and Washington (36). Oil is obtained from the seed either by pressure or by solvent extraction, the latter method being employed mostly in Europe (34).

RICE BRAN

Rice bran oil may be produced either by pressing or solvent-extraction methods (34, 78). In either case, it is necessary that the bran be extracted as soon after milling as possible to produce a high-quality oil. Rice bran may be solvent-extracted without pre-treatment of any sort (36).

Collier (18) states that the solvent extraction process closely approximates that which is commonly used for extraction of cottonseed or soybeans. However, variance in detail of equipment design and operating technique is quite pronounced.

There are a number of plants producing rice bran oil in operation, including at least three in California (36), and one in Texas (39). According to Shearon (67), there is a second mill under construction in Texas. We understand from private sources that there are two other mills also under construction, a third in Texas, and one in Georgia.

SAFFLOWER SEED

Christensen (16) states that, in commercial operation, the seed may be easily decorticated by use of roll mills or other suitable mills, followed by screening and aspiration. It is considered good practice, however, to leave substantially 10 percent of hulls in the decorticated seed.

Kellenbarger (35) reports that Western Solvents, Incorporated, Longmont, Calif., is decorticating seed using a screen which has been changed and adapted to safflower. (They also state it is difficult to meet the current demand for the meal.)

The oil may be recovered from the seed by any of the customary methods—pressing or solvent extraction (16, 34).

Sabin (62) reported that in pilot-plant and on commercial-scale operations, both continuous screw-press and solvent-extraction methods have been satisfactorily employed; hydraulic pressing, however, does not seem feasible because of low oil recovery.

Kellenbarger (35) states that the Glidden Company, Vegetable Oil Division, Buena Park, Calif., reported that, in processing whole seed (no hull removed) during 1959, the capacity of the screw press was not lowered. Crushed seed was put through the press at 215° F. and 5 percent moisture. They did feel that the hulls were quite abrasive and, therefore, would materially increase maintenance costs.

Bickford (13) has stated that cottonseed mills can process safflower seed without change in equipment, and that one mill in Texas has regularly crushed this seed for the last several years.

Shearon (67) states that a domestic market for this oil could be developed if commercial cultivation of the seed proves feasible in this country.

SESAME SEED

According to Shearon (67) and Markley (42), sesame seed requires no decortication or preparation other than cleaning prior to milling. They state that this seed is readily processed in conventional oil mill machinery, continuous screw press, hydraulic press, and fore-press and solvent extraction. Markley (42) states that in the United States and other countries of the Western Hemisphere, continuous screw presses are preferred, although some processing is done with hydraulic presses. Jamieson (34) reports that, in Europe and Asia, damaged seed is usually solvent extracted, the meal being used only for fertilizer.

Andraos (1) has reported the properties of sesame oil obtained by batch solvent extraction on a pilot-plant scale.

SOYBEANS

See references 30, 34, 37, 41, 78.

STILLINGIA (Chinese Tallow Tree) SEED

The seed of the Chinese tallow tree yield three main products, a vegetable tallow, a vegetable oil (78, 79), and a high-protein flour (14).

Bolley (14) has reported on a recent

Cuban Starts Modern Cotton Plantation

Dayton Hedges, textile manufacturer, is establishing one of the world's most modern cotton plantations on 30,000 acres on the southern coast of Cuba, about 80 miles from Havana.

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Fields will be irrigated with a pump on each unit of about 300 acres. Chemicals will be used for weed control, and airplanes for insect control.

Cotton was practically abandoned as a Cuban crop when Spain began buying American and Egyptian growths and sugar cane became more profitable, in the eighteenth century.

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study of various processing procedures which could be used with the addition of a minimum of equipment by oil mills at present processing other seeds.

Approximately 200 pounds of seed, obtained from Chinese tallow trees in the Houston, Texas, area was cleaned of twigs, dirt, and other trash by screening and air separation.

In the first large-scale experiment, the tallow was removed by solvent extraction, the "tallow-free" seed was crushed, and the oil was obtained by solvent extraction. However, the oil obtained was of poor quality due to contamination by tallow which had not been completely removed, and the kernel was contaminated with fiber. This showed the desirability of complete coating removal prior to oil extraction.

Tallow and fiber were completely removed by stirring the seed in warm water to disintegrate the coating. The slurry was screened to obtain the decoated seed. Tallow was removed from the fiber by solvent extraction and by expression in a laboratory cage press.

A good grade of tallow may be prepared directly from the seed by solvent extraction with hot hexane. There are indications that benzene, dichloroethylene, and carbon tetrachloride may be better solvents. The remaining tallow and fiber are removed by the water treatment previously described. Attempts to decoat the seed mechanically using a rotary wire brush were not successful. The decoated seed were then crushed satisfactorily in a large coffee mill which was used because crushing rolls were not readily available. The oil was readily extracted from the crushed, decoated seed using hexane. The extraction residue was easily air-separated into a high-protein flour and crushed shell.

Bolley states that the experiments indicate that the seed of the Chinese tallow tree can readily be processed in equipment available in many oil mills.

Shearon (67) states that harvesting difficulties present one of the major obstacles to any commercial exploitation of this source. The Texas A. & M. College has conducted much of the Chinese tallow research.

SUNFLOWER SEED

The oil may be extracted from sunflower seed by pressure (25, 34) or solvent-extraction methods (6, 23). However, Duncan (23) reports that the pressure method produced an unstable meal and an oil that soon became rancid, but a process of solvent extraction under low pressure, developed by Mr. E. Levin, stabilizes the meal and preserves the sweetness of the oil.

TOBACCO SEED

Kester (36) states that the maximum potential supply of tobacco seed oil, estimated by Riemenschneider (60), is three times the potential yield of oil from rice bran. However, only reports of experimental laboratory extraction could be found.

Williams (78) and Rao (58) state that the seed is difficult to crush and extract because of its small size. However, Jamieson (34) reports that, in Bulgaria, the oil is obtained from the seed by pressure.

TOMATO SEED

Tomato refuse may be processed to obtain two products, namely, fixed oil and meal (56).

Rabak (in 1917) and Shrader and Rabak (in 1921) listed several methods for separating the seed from skins and other residue:

(1) Suspending the waste in several volumes of water and agitating; the skins being light have a tendency to float while the seed and cores sink;

(2) Discharging the waste along with a stream of water into a long trough provided with a false bottom, the mesh of which allows only the seed to fall through;

(3) Dumping the waste into a large funnel - shaped receiver filled with water which has been given a circulatory motion by impinging several streams of water set at small angles to the surface; the seed sink while the

Ladybugs May Work . . Poisons Are Certain

As experiments with ladybugs as foes of harmful cotton pests get underway on the Texas South Plains, ginners and crushers should advise farmers that proved methods, based on years of research and experience, are the most certain way to control cotton insects.

Farmers using the beneficial ladybug beetles hope that they will supplement other control measures, but, as pointed out in The Cotton Gin and Oil Mill Press for July 5, do not know whether the experiment will work. Therefore, it is highly important that full use be made of the insecticides and methods outlined in the 1952 recommendations of each state.

One of the first shipments of the ladybugs has been applied on the cotton farm of George Sooter, Shallowater, Texas. He expects to use 20 gallons of the beetles, in applications of four gallons made at intervals of three or four weeks. The ladybugs are shipped in two-gallon boxes, partitioned and filled with food shavings or pine cones for protection. The shavings or cones with the bugs are placed on cotton fields at intervals of about 30 rows and about 40 steps apart.

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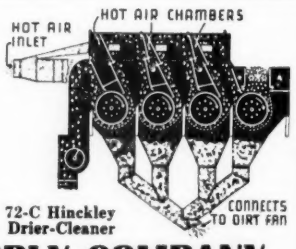

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But—and for you this is the heart of the matter —The Cotton Gin and Oil Mill Press *does* reach cotton gins, cottonseed and other oilseed processors from California to the Carolinas—and it is the *only* publication that reaches the processors *exclusively*.

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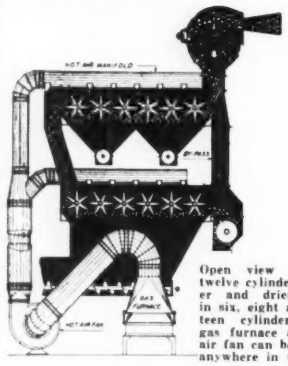

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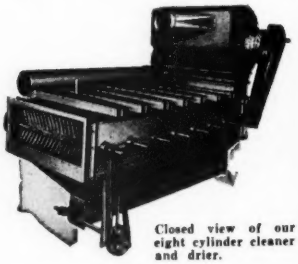

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skins are carried over the top in a continuous overflow;

(4) Separating the seed and the skins in the original cycloning operation by using screens in which the perforations are just large enough to permit the passage of the seed.

The last is the most practical method (4). If the seed are separated wet, they must be dried by pressing, by centrifuging, by using a moisture-expeller, or a tunnel drier.

The oil may be extracted either by pressure or by use of solvents.

Jamieson (34) reports that in Italy, where this oil has been produced commercially since 1911, the seed and skins are washed, pressed, and dried. The seed, after mechanical separation from the skins, are pressed to recover the oil.

Kester (36) states that at the time of past investigations (1917 and 1921) of the utilization of tomato waste (including such factors as handling and sorting tomato waste, cleaning the seed, extraction and refining of the oil, cost analysis and probable returns) conducted by the United States Department of Agriculture (56, 68), only 400 tons of tomato-seed oil were potentially available; since then, the amount has risen considerably, and the general economic picture is greatly different.

At least two mills, both in California, in past years have processed or experimented with processing tomato seed, one using solvent extraction, the other using pressure.

TUNG NUT

In 1932, the first commercial crop of tung nuts was obtained from groves in Florida. According to Wood (79), there were 12 tung oil mills in the production area by 1949. The cost of the mills range from $25,000 to $75,000, depending on size and location.

Wood reports that, for the past 20 years, all mills have used the continuous expression method. Rauber (59) states that the hydraulic-press method is unpopular because of the poor yield of oil that is achieved. It has also been reported (private source) that the oil polymerizes on the press cloths.

Recent reports of Wood (79) and McKinney (47) present comprehensive information on the method employed in the commercial tung oil mills.

The ripe fruit, containing about 65 percent moisture, falls to the ground and is allowed to lie until it has dried naturally for 2 to 3 weeks. This usually reduces the moisture content to about 25 percent. The fruit can then be stored in bins for about 2 months to allow further drying to about 13 percent. In wet seasons when the fruit may not dry sufficiently on the ground, the hulls, which contain more than half of the moisture, are removed and the nuts are dried artificially in driers to a moisture content of about 10 percent.

The fruit may be hulled either at the mill, after storing, or in the orchard, before storing. At the oil mill, hulls and part of the shells are removed from the seed and kernels using a disc hulling machine together with a separator purifier. Optimum moisture content is about 15 to 20 percent. Tests with the disc-type huller showed that a 20 to 30 percent shell content in a meal of a specific moisture content (about 3.5 to 4 percent) gives the best yields of oil.

In the orchard, only hulls are removed, leaving the nut shells unbroken, using a portable huller which operates on a

principle similar to a commercial peanut sheller. Optimum moisture content is about 30 to 35 percent. Tests with the portable huller showed that meal containing all the shell processed satisfactorily and that recovery of oil from such material was higher than from material containing 24 percent shell.

Tung meal obtained by grinding the mixture of seed and kernels is preheated to about 180° F. prior to entering the press. In the expression machine, pressure on the meal is gradually increased to about 12,000 pounds per square inch. The oil obtained is agitated in a steam-jacketed tank with about 1 percent of a diatomaceous earth, and then is passed under a pressure of about 40 pounds per square inch through a special filter press. The filter cake obtained, usually amounting to 20 percent of the weight of the crude tung oil filtered, contains about 50 percent oil and must be processed to recover this oil.

Neither one of the two ways used at present to recover the filter-cake oil is very satisfactory. The filter cake may be added, a little at a time, to the tung meal being fed to the press, or it may be accumulated for about a week and separately pressed after being mixed with press-cake and hulls. The difficulty in either is that the oil in the filter cake oxidizes readily, especially at higher temperatures.

A substitute for the present unsatisfactory methods which has been considered is extraction by petroleum solvents. One of the tung mills has successfully applied this method for several seasons.

The United States Tung Oil Laboratory at Bogalusa, La., has conducted experiments on processing tung nuts and tung press-cake by both batch and continuous solvent extraction (46), and has found solvent extraction to be a promising method in pilot-plant investigations (47).

McKinney (47) reports that two difficulties encountered were that a glyceride component of the solvent-extracted oil solidified and the oil contained excess acidity. It was found that the solidified oil could be returned to a permanently liquid form by heating to 392° F. Acidity was reduced when the meal was extracted promptly as soon as it was prepared and the oil-solvent mixture filtered without delay.

In extractions using normal hexane, the use of roller mills to prepare kernels for extraction was found to be best and 99 percent or better oil recovery could be obtained. The meal should contain about 7 percent moisture to give the most efficient extraction.

TYPHA (Cattail) SEED

Typha (cattail) seed might be made available from processing plants in Minnesota and Wisconsin. These plants, according to Kester (36), remove the fibrous portion of the cattail head for the manufacture of insulation and shock-absorbing materials.

Clopton and VonKorff (17), who have solvent-extracted the seed on a laboratory scale, state that the seed might present processing difficulties on a commercial scale because of its small size.

WALNUT

The raw material for oil recovery is obtained from shelling plants in the form of inedible meats and meat fragments recovered from shells (34, 79). Wiegand (77) states that, for some time, California growers have sold inedible kernels

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Williams (78) states the best oil is obtained by pressing the kernels when they are 2 to 3 months old, as before this time a good deal of albuminous matter separates with the oil; but if, on the other hand, the kernels are kept too long, considerable hydrolysis will take place.

Kester (36) reported that screw-press equipment is used for the recovery of oil.

Wood (79) states that more of this oil could be consumed if supplies were more readily available.

WHEAT GERM

Goss (28) states that two processes are used to recover wheat germ oil, cold pressing and solvent extraction. Pressing is accomplished in screw presses, removing only half the oil. Batch solvent extraction, by which higher yields of oil can be obtained, is also used. In each case, considerable care is necessary to avoid heating and consequent destruction of the vitamin E contained in the unsaponifiable matter.

Jamieson (34) states that wheat oil has been produced commercially for some years and sold largely for medicinal purposes. Contrary to statements in the literature, wheat oil, when properly prepared, has good keeping qualities.

CONCLUSIONS

The review of the literature on the commercial and experimental processing of various oil-bearing materials indicates that a number of these materials should attract oil mill operators as a possible means of extending their operating season and increasing their over-all profits.

Of the materials discussed, four, especially, appear to hold promise of eventual commercial importance as domestically available oil-bearing materials. These are sesame, safflower, sunflower, and castor beans. Sesame is at present in the stage of agricultural development and is reported to be yielding from 400 to 456 pounds of oil per acre. Safflower and sunflower seed are grown here on a limited scale in some regions and will produce per acre, respectively, 260 pounds and 232 to 272 pounds of oil. This production of oil compares favorably to soybeans and cottonseed which produce per acre, respectively, 200 to 230 and 60 to 72 pounds of oil. Domestic production of castor beans is being fostered by both Government and private industry (2, 9) because of the importance of the oil in military and industrial applications.

Certain byproduct and waste materials, such as citrus seed, grape seed, and rice bran, are being processed in some oil mills. Others, such as tobacco seed and tomato seed, also appear promising as available materials for extending seasonal operations.

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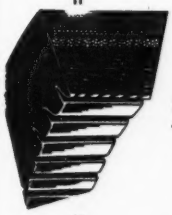

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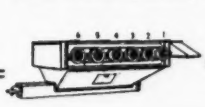

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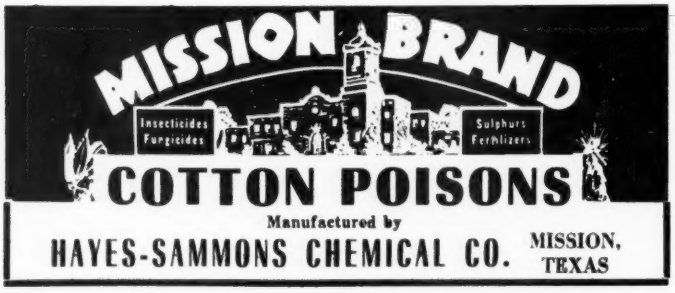

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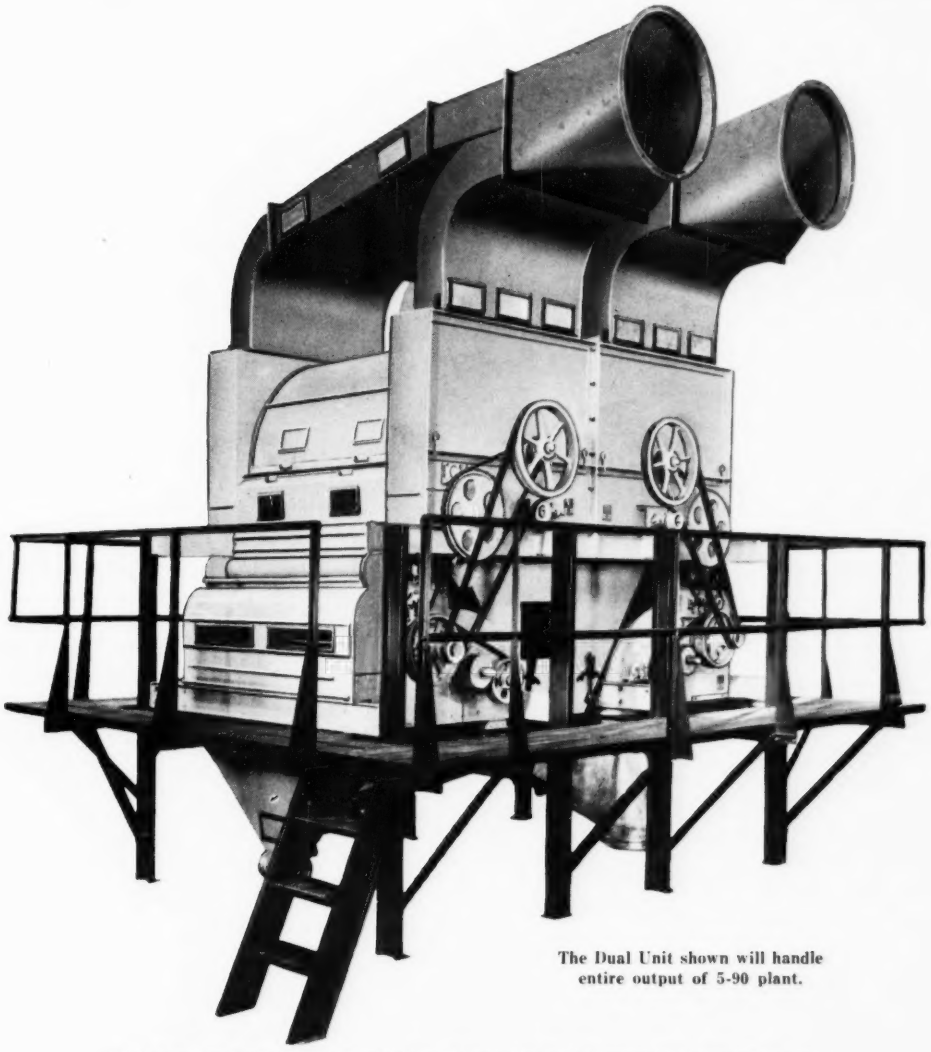

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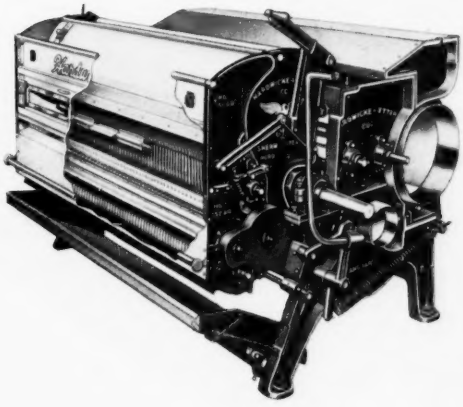

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